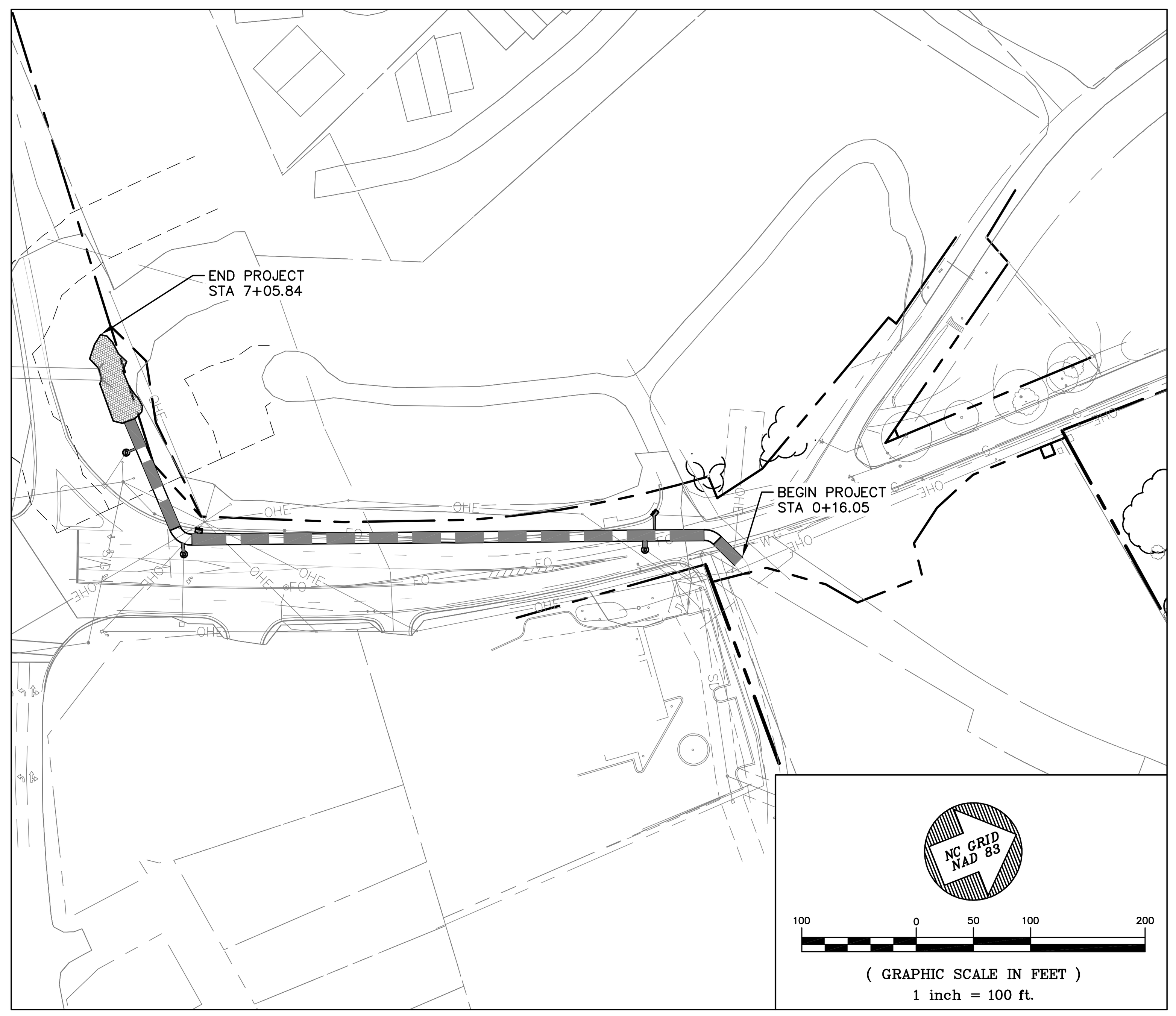
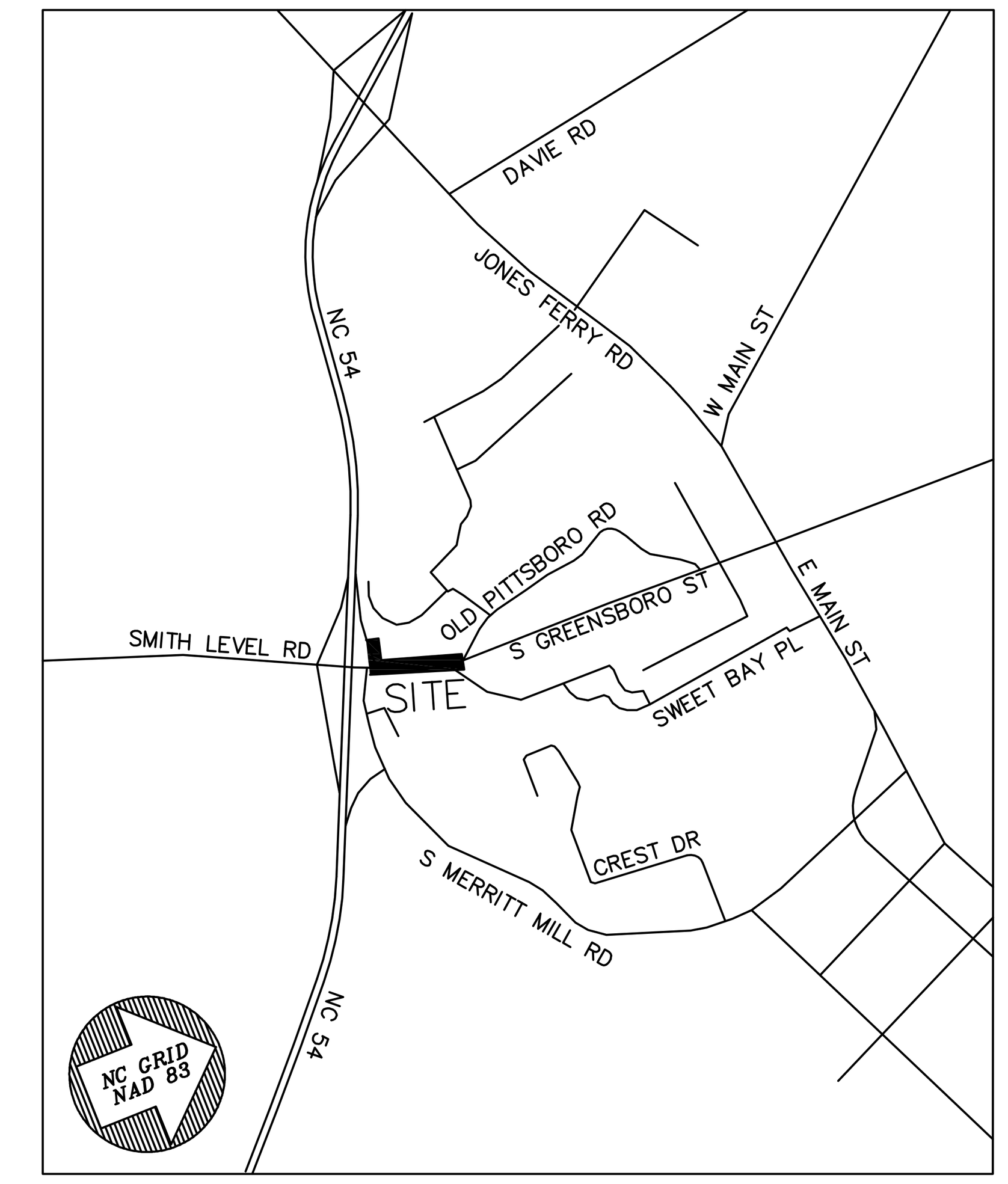
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ORANGE COUNTY

LOCATION: S.R. 1919 SOUTH GREENSBORO STREET AT N.C. HWY. 54

TYPE OF WORK: REMOVE AND REPLACE EXISTING STORM DRAIN WITH 9'-3" X 6'-5" CORRUGATED ALUMINUM STRUCTURAL PLATE PIPE ARCH, DRAINAGE, GRADING, PAVING, CURB & GUTTER, TRAFFIC SIGNAL

PROJECT NO. 7B.206814.12





VICINITY MAP
SCALE: NTS

DRAWING LIST

SHEET	DRAWING TITLE
G0001	COVER
C1200	PIPE UPGRADE OVERVIEW
C1201	PIPE UPGRADE NORTH - PLAN & PROFILE
C1202	PIPE UPGRADE SOUTH - PLAN & PROFILE
C1301	EROSION CONTROL PLAN
HYD 1	PERMIT/ IMPACT COVER
HYD 2	PERMIT/ IMPACT DRAWINGS
HYD 3	PERMIT/ IMPACT DRAWINGS
HYD 4	PERMIT/ IMPACT TABLE
TMP 1	TRAFFIC MANAGEMENT PLAN
TMP 2	TRAFFIC MANAGEMENT PLAN PHASE 1 OVERVIEW
TMP 3	TRAFFIC MANAGEMENT PLAN PHASE 1 ENLARGEMENT
TMP 4	TRAFFIC MANAGEMENT PLAN PHASE 2 OFF SITE DETOUR
TMP 5	TRAFFIC MANAGEMENT PLAN PHASE 2 ENLARGEMENT
SIG 1	TEMPORARY SIGNAL PLAN
SIG 2	SIGNAL UPGRADE PLAN

SPECIAL PROVISIONS

1. COORDINATE WITH SHANE SMITH AT DUKE ENERGY – (919) 687–3385 – FOR ANY WORK ASSOCIATED WITH EXISTING OVERHEAD ELECTRIC LINES AND POLES, AS NEEDED.
2. COORDINATE WITH GEORGE STOTLER AT TIME WARNER CABLE – (919) 427–5506 – FOR ANY WORK ASSOCIATED WITH TIME WARNER CABLE, AS NEEDED.
3. TO HAVE OVERHEAD UTILITY LINES REMOVED AND RELOCATED, AS NEEDED.
4. COORDINATE WITH GRANT SMITH AT AT&T – (919) 788–2768 – FOR ANY WORK ASSOCIATED WITH OVERHEAD/UNDERGROUND UTLILTY, AS NEEDED.
5. COORDINATE WITH BRIAN SMITH AT PSNC ENERGY – (919) 598–7454– FOR ANY WORK ASSOCIATED WITH EXISTING GAS LINES, AS NEEDED.
6. COORDINATE WITH NICK PARKER AT OWASA – (919) 537–4201 – FOR ANY WORK ASSOCIATED WITH EXISTING WATER AND SEWER MAINS, AS NEEDED.
7. REFER TO OWASA – MANUAL OF SPECIFICATIONS, STANDARDS AND DESIGN, PAGE 02510–36, FOR ABANDONING REQUIREMENTS OF EXISTING WATER MAINS, SERVICES AND LINES.
8. FEMA INFORMATION OBTAINED FROM PANEL 9778 MAP NUMBER 3710977800J DATED FEBRUARY 2, 2007.

2012 STANDARD SPECIFICATIONS
2012 ROADWAY STANDARD DRAWINGS
CLEARING + GRUBBING METHOD II

BALLENTINE ASSOCIATES, P.A.
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Ballentine Associates, P.A. CORPORATE SEAL C328 NORTH CAROLINA Chapel Hill

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL ASHTON R. SMITH
DocuSigned by: Ashton Smith
7/5/2016

NUM	REVISIONS	DATE
1	PER NCDOT COMMENTS	24 MAY 16
2	PER NCDOT COMMENTS	13 JUN 16

OWNER INFORMATION
NCDOT
PO BOX 766
127 E CRESCENT SQUARE DR
GRAHAM, NC 27253
OWNERS REPRESENTATIVE:
CHUCK EDWARDS
PH. (336) 570–6833
FAX (336) 570–6873
EMAIL cnedwards@ncdot.gov

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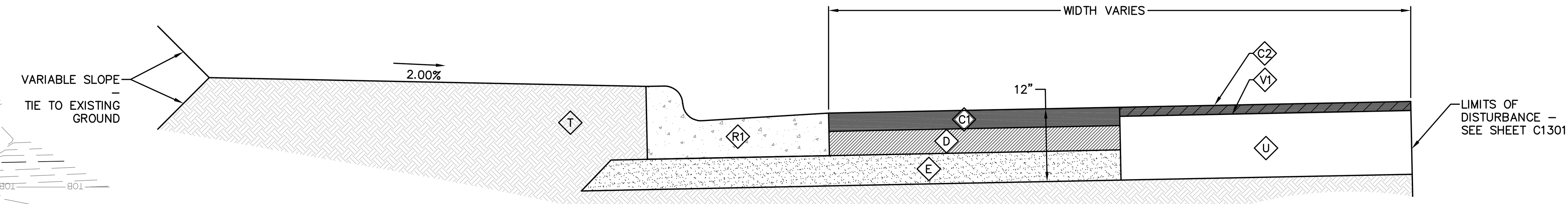
SOUTH GREENSBORO STREET
NCDOT STORM PIPE UPGRADE
CARRBORO, NORTH CAROLINA

CONSTRUCTION DRAWINGS

JOB NUMBER: 114023.10
DATE: 24 MAY 16
SCALE: AS NOTED
DRAWN BY: J.C.O.
REVIEWED BY: A.R.S.

SHEET
G0001

N:\Projects\114023.00 South Green\114023.10 -NCDOT Pipe Upgrade\1__Dwg\BA-Model Files_G0001-Cover-SG Pipe Upgrade.dwg, 6/13/2016 4:17:35 PM, Dillons



PAVEMENT SCHEDULE

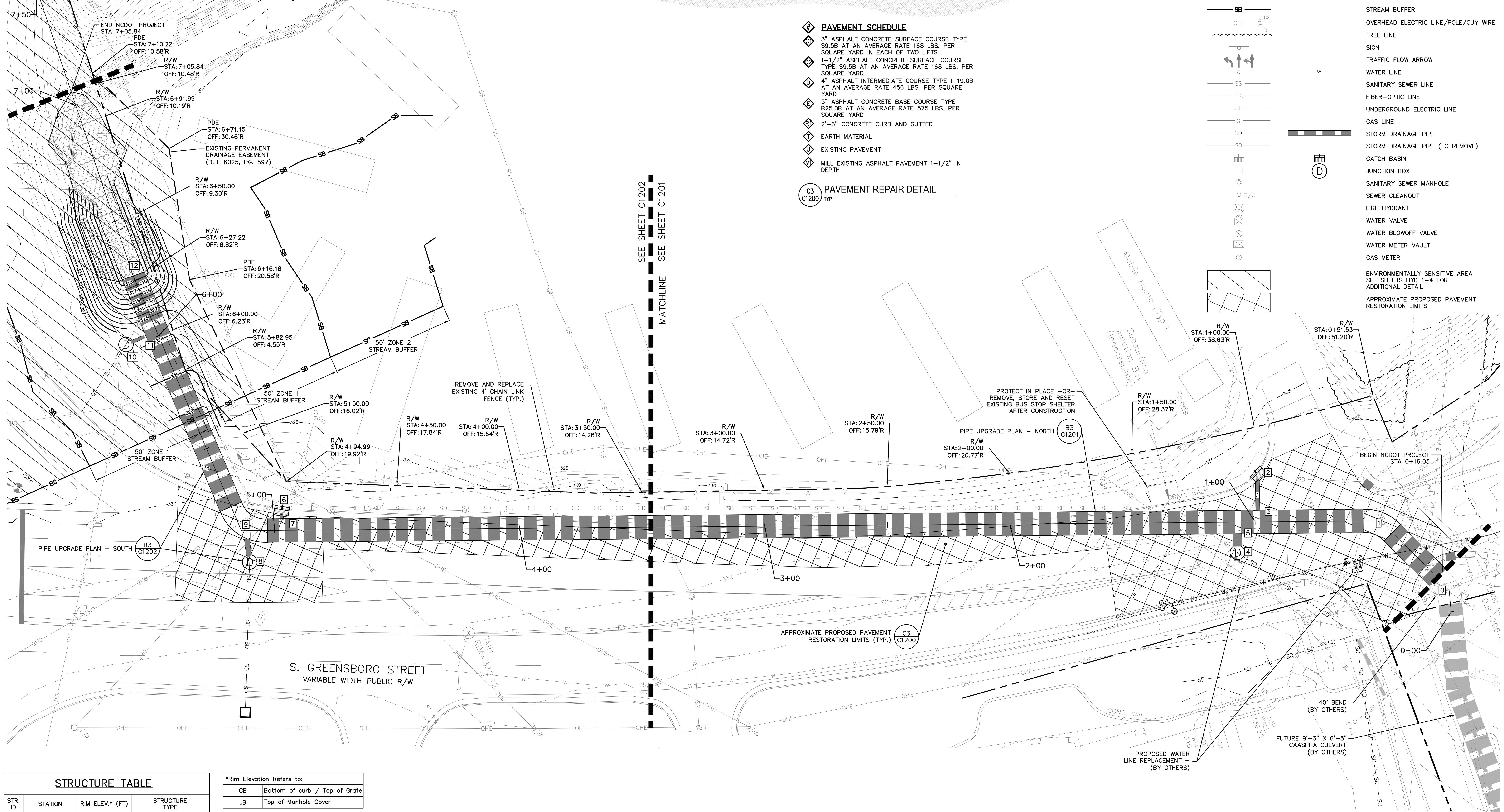
#	
C1	3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B AT AN AVERAGE RATE 168 LBS. PER SQUARE YARD IN EACH OF TWO LIFTS
C2	1-1/2" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B AT AN AVERAGE RATE 168 LBS. PER SQUARE YARD
D	4" ASPHALT INTERMEDIATE COURSE TYPE I-19.0B AT AN AVERAGE RATE 456 LBS. PER SQUARE YARD
E	5" ASPHALT CONCRETE BASE COURSE TYPE B25.0B AT AN AVERAGE RATE 575 LBS. PER SQUARE YARD
R1	2'-6" CONCRETE CURB AND GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILL EXISTING ASPHALT PAVEMENT 1-1/2" IN DEPTH

C3 / C1200 TYP — PAVEMENT REPAIR DETAIL

DRAWING LEGEND

SYMBOL/ABBREVIATION

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE
		RIGHT-OF-WAY LINE
330	330	MAJOR CONTOUR
332	332	MINOR CONTOUR
TOB		TOP OF BANK
SB		STREAM BUFFER
OHE UP		OVERHEAD ELECTRIC LINE/POLE/GUY WIRE
		TREE LINE
		SIGN
		TRAFFIC FLOW ARROW
W	W	WATER LINE
SS		SANITARY SEWER LINE
FO		FIBER-OPTIC LINE
UE		UNDERGROUND ELECTRIC LINE
G		GAS LINE
SD		STORM DRAINAGE PIPE
SD		STORM DRAINAGE PIPE (TO REMOVE)
		CATCH BASIN
	D	JUNCTION BOX
		SANITARY SEWER MANHOLE
C/O		SEWER CLEANOUT
		FIRE HYDRANT
WV		WATER VALVE
		WATER BLOWOFF VALVE
		WATER METER VAULT
		GAS METER
		ENVIRONMENTALLY SENSITIVE AREA SEE SHEETS HYD 1-4 FOR ADDITIONAL DETAIL
		APPROXIMATE PROPOSED PAVEMENT RESTORATION LIMITS



STRUCTURE TABLE

STR. ID	STATION	RIM ELEV.* (FT)	STRUCTURE TYPE
0	0+09.64		40° BEND (BY OTHERS)
1	0+48.98		45° BEND, ELBOW
2	0+98.93	335.90	CB-NCDOT STD. 840.01
3	0+98.93		ELBOW, TEE
4	1+07.33	336.15	JB-NCDOT STD. 840.34
5	1+07.33		ELBOW, TEE
6	4+96.98	330.20	CB-NCDOT STD. 840.01
7	4+96.98		ELBOW, TEE
8	5+10.28	330.20	JB-NCDOT STD. 840.34
9	5+13.55		67.5° BEND, WYE
10	6+01.93	325.50	JB-NCDOT STD. 840.34
11	6+01.93		ELBOW, TEE
12	6+25.54		PIPE END

*Rim Elevation Refers to:	
CB	Bottom of curb / Top of Grate
JB	Top of Manhole Cover

PIPE TABLE

US STR	DS STR	US STATION	DIAMETER (IN)	MATERIAL	PIPE WALL THICKNESS	US INV. ELEV. (FT)	DS INV. ELEV. (FT)	LENGTH (FT)	SLOPE (FT/FT)
0	1	0+09.64	9'-3"X6'-5"	CAASPPA	0.150", 9"X2-1/2" CORRUGATIONS	322.50	322.20	26	0.0115
1	9	0+48.98	9'-3"X6'-5"	CAASPPA	0.150", 9"X2-1/2" CORRUGATIONS	322.20	320.40	447	0.0040
2	3	0+98.93	18	CAAP	0.060", 2-2/3"X1/2" CORRUGATIONS	328.00	325.00	16	0.1887
4	5	1+07.33	42	CAAP	0.105", 2-2/3"X1/2" CORRUGATIONS	323.00	322.00	8	0.1307
6	7	4+96.98	15	CAAP	0.060", 2-2/3"X1/2" CORRUGATIONS	323.50	320.25	4	0.8291
8	9	5+10.28	24	CAAP	0.060", 2-2/3"X1/2" CORRUGATIONS	322.40	320.40	10	0.2087
9	11	5+13.55	9'-3"X6'-5"	CAASPPA	0.150", 9"X2-1/2" CORRUGATIONS	320.40	315.50	78	0.0626
10	11	6+01.93	15	CAAP	0.060", 2-2/3"X1/2" CORRUGATIONS	318.50	315.50	9	0.3400
11	12	6+01.93	9'-3"X6'-5"	CAASPPA	0.150", 9"X2-1/2" CORRUGATIONS	315.50	314.00	25	0.0626

PIPE UPGRADE OVERVIEW

(GRAPHIC SCALE IN FEET)
1 inch = 20 ft.

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NORTH CAROLINA PROFESSIONAL SEAL 036849 ENGINEER ASHTON R. SMITH
DocuSigned by: Ashton Smith 7/5/2016

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1	PER NCDOT COMMENTS	24 MAY 16
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SOUTH GREENSBORO STREET NCDOT STORM PIPE UPGRADE

CARRBORO, NORTH CAROLINA

CONSTRUCTION DRAWINGS

JOB NUMBER: 114023.10
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SCALE: AS NOTED
DRAWN BY: J.C.O.
REVIEWED BY: A.R.S.

SHEET
C1200

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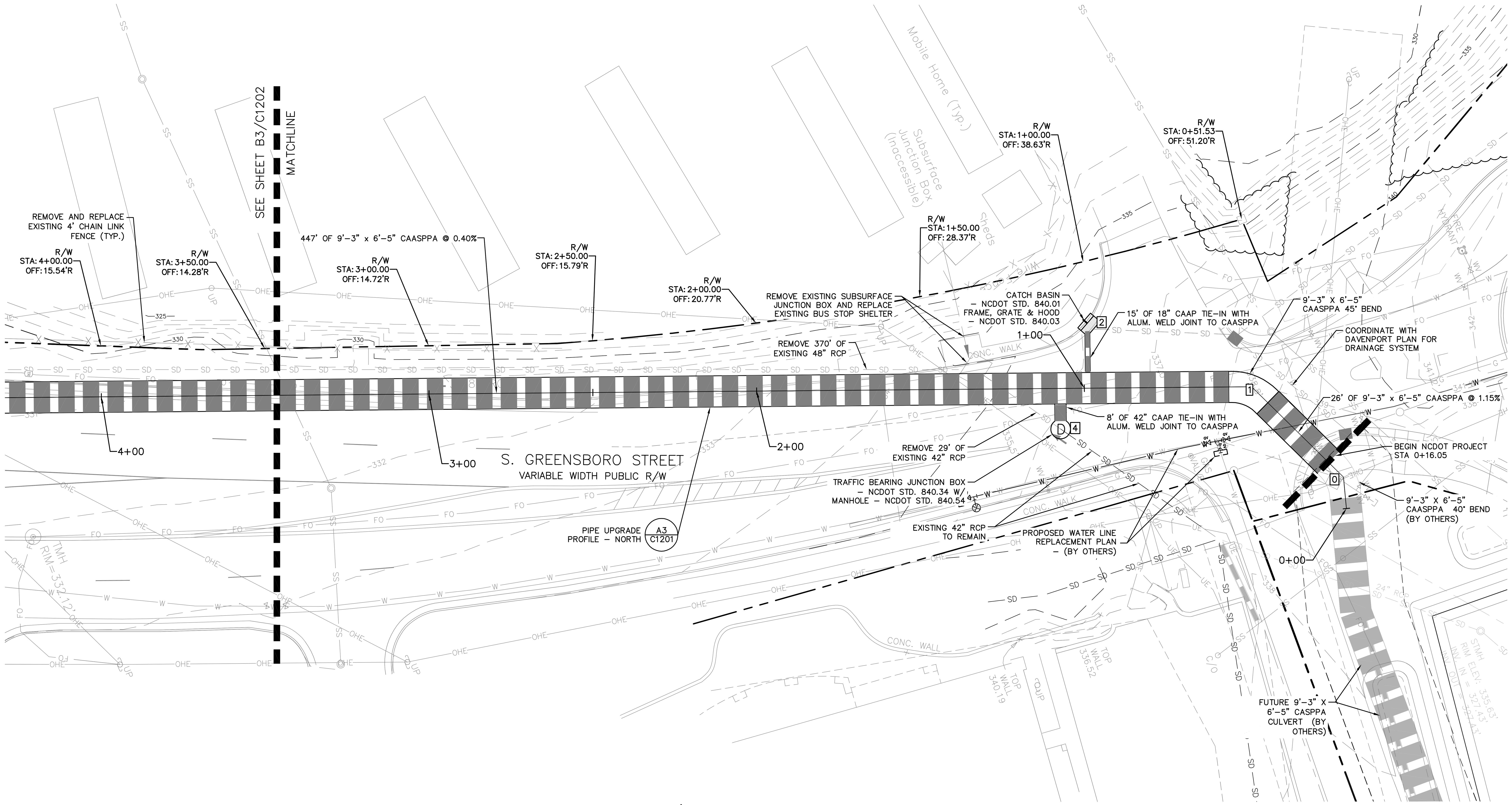


B3 / C1201 **PIPE UPGRADE PLAN – NORTH**
SCALE: 1" = 20'

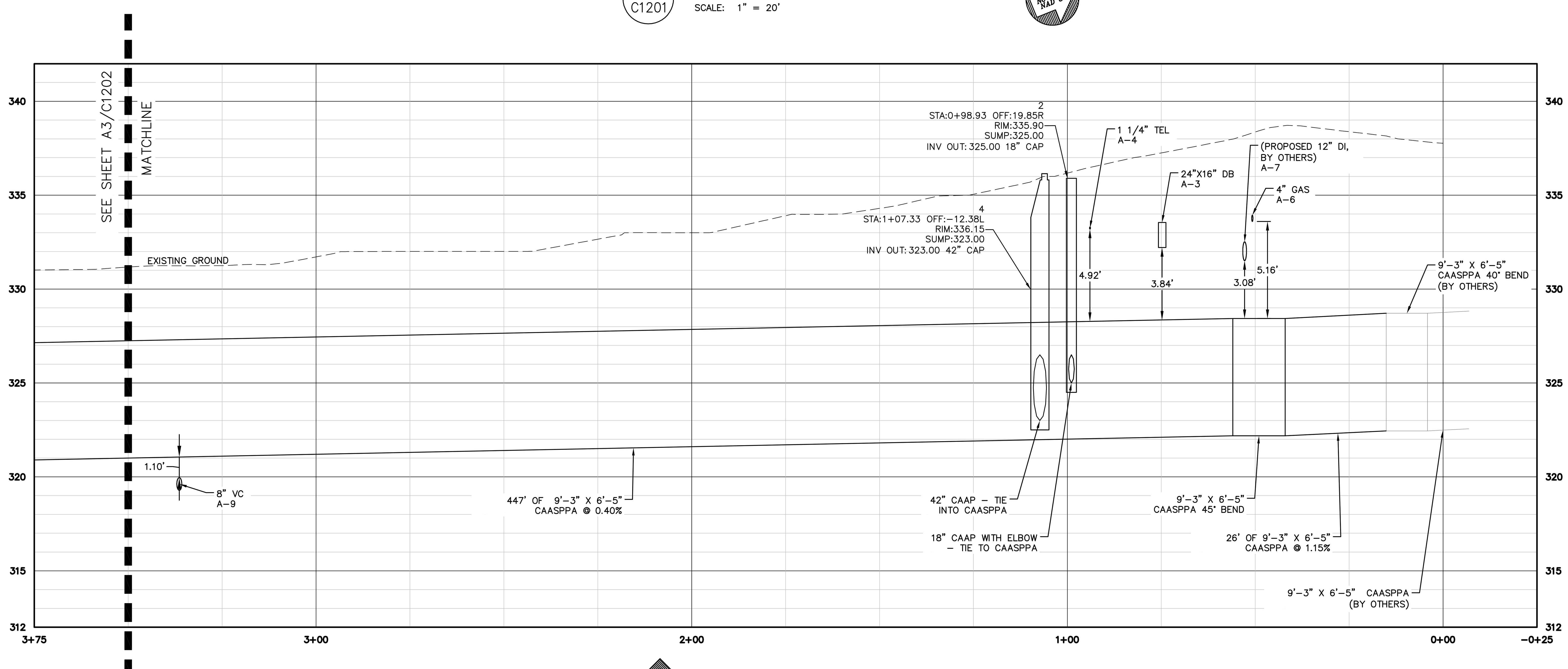
NC GRID NAD 83

DRAWING LEGEND

SYMBOL/ABBREVIATION EXISTING	PROPOSED	DESCRIPTION
— — —		PROPERTY LINE
— — —		RIGHT-OF-WAY LINE
330	330	MAJOR CONTOUR
332	332	MINOR CONTOUR
TOB		TOP OF BANK
SB		STREAM BUFFER
OHE UP		OVERHEAD ELECTRIC LINE/POLE/GUY WIRE
		TREE LINE
		SIGN
		TRAFFIC FLOW ARROW
W	W	WATER LINE
SS		SANITARY SEWER LINE
FO		FIBER-OPTIC LINE
UE		UNDERGROUND ELECTRIC LINE
G		GAS LINE
SD		STORM DRAINAGE PIPE
SD		STORM DRAINAGE PIPE (TO REMOVE)
		CATCH BASIN
	D	JUNCTION BOX
		SANITARY SEWER MANHOLE
C/O		SEWER CLEANOUT
		FIRE HYDRANT
WV		WATER VALVE
		WATER BLOWOFF VALVE
		WATER METER VAULT
		GAS METER

NOTE:

1. REFER TO SHEET C1200 FOR PIPE/STRUCTURE TABLE



A3 / C1201 **PIPE UPGRADE PROFILE – NORTH**
SCALE: HOR: 1" = 20'
VERT: 1" = 4'

PIPE UPGRADE NORTH PLAN & PROFILE

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CARRBORO, NORTH CAROLINA
CONSTRUCTION DRAWINGS

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SHEET
C1201

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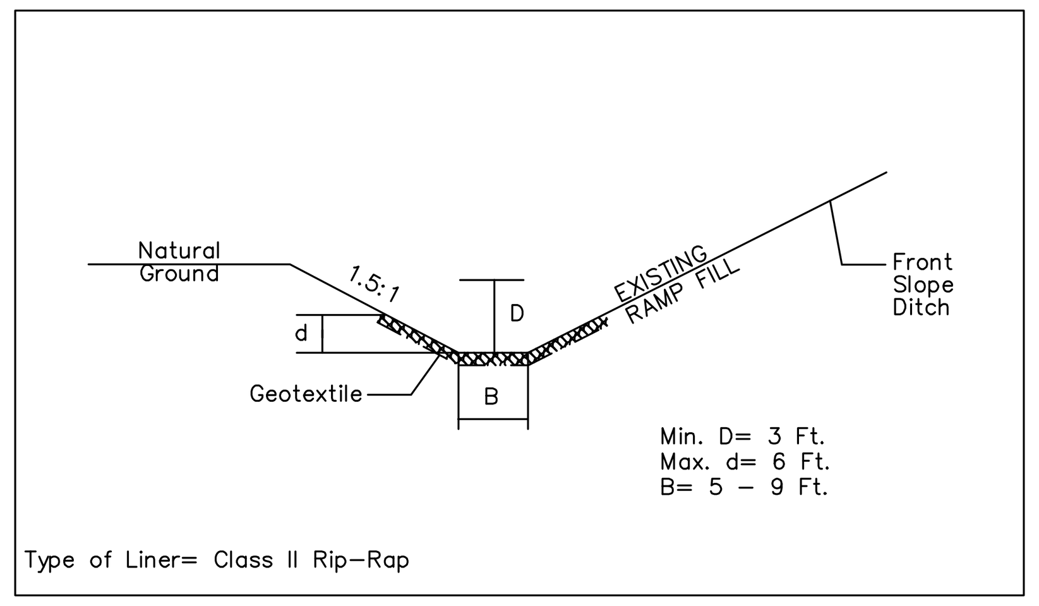
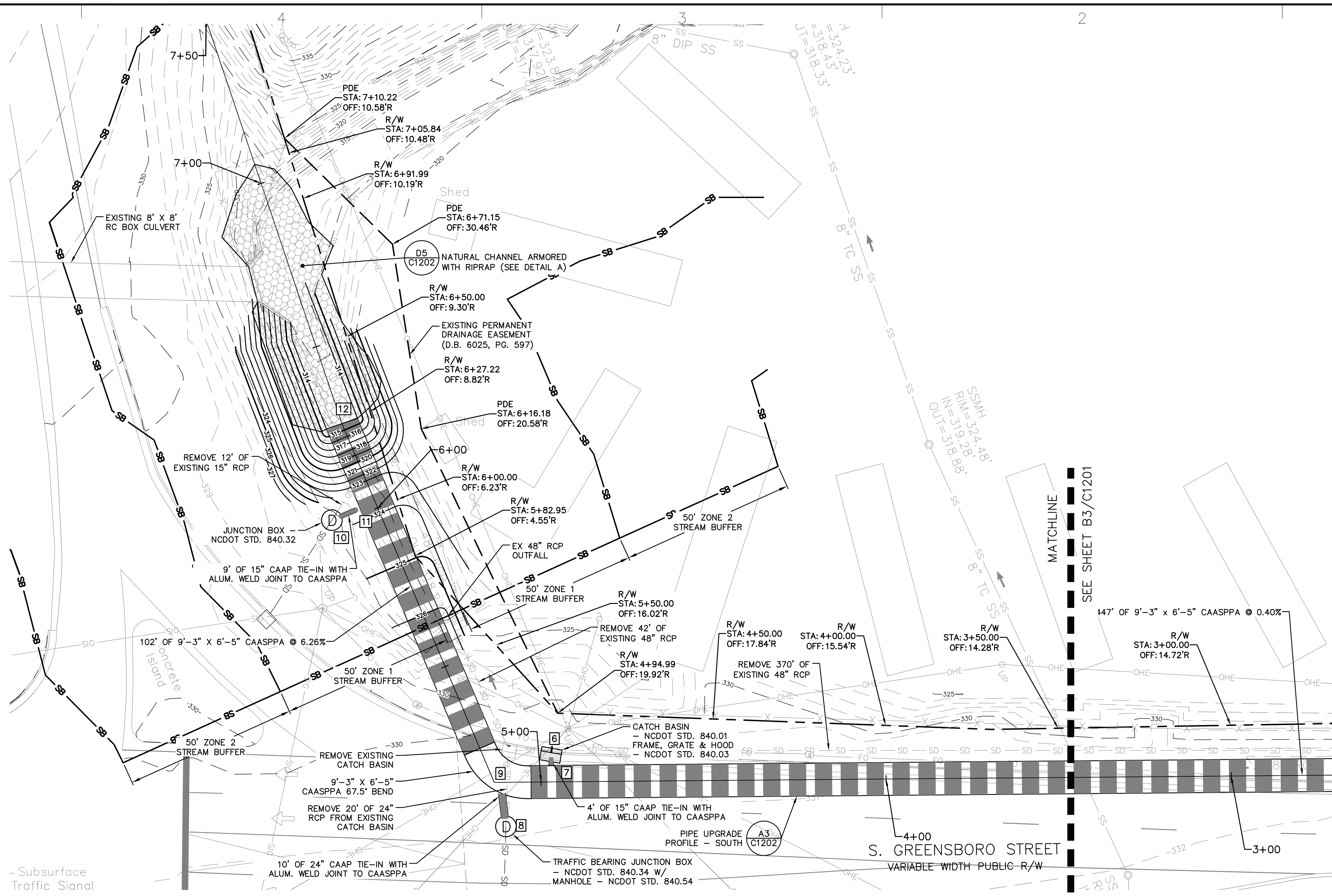
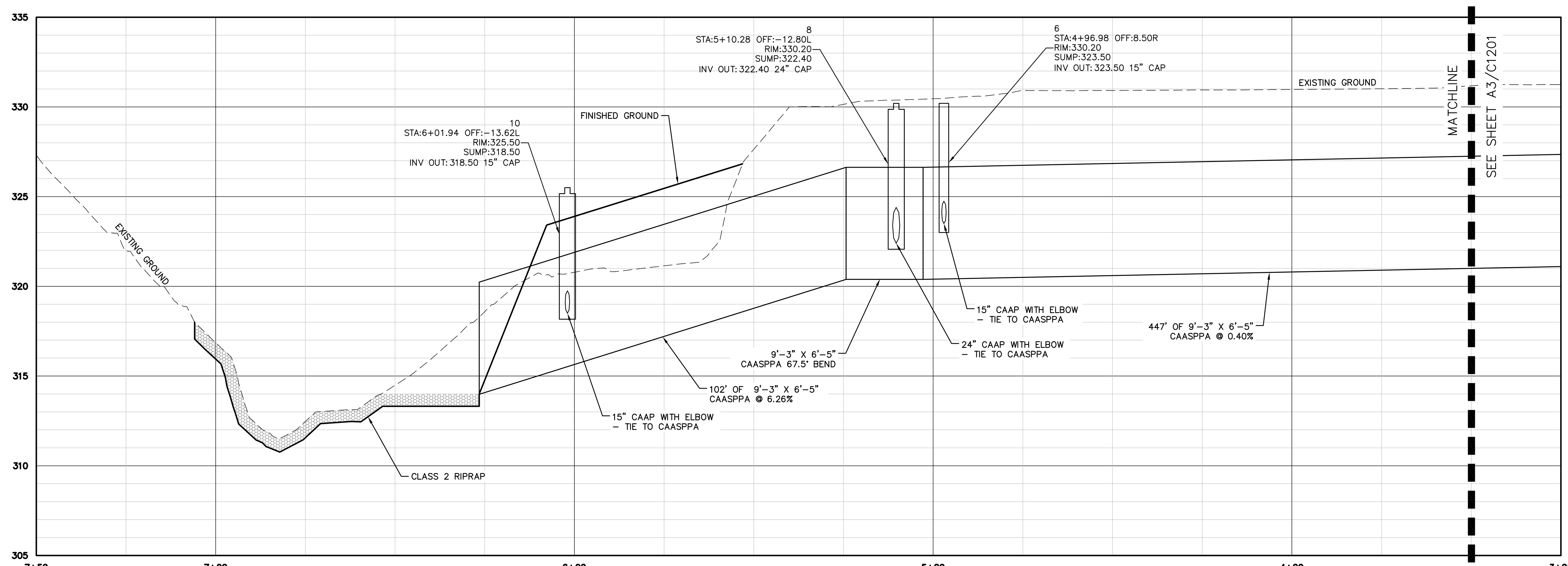


BASE CHANNEL
SEE DETAIL A
CLASS II RIP RAP
EST. 200 TONS
EST. 150 S.Y. GEOTEXTILE
EST. EXCAVATION 125 C.Y.

D5/C1202 DETAIL A–BASE CHANNEL
N.T.S.



B3/C1202 PIPE UPGRADE PLAN – SOUTH
SCALE: 1" = 20'



A3/C1202 PIPE UPGRADE PROFILE – SOUTH
SCALE: 1" = 20'

DRAWING LEGEND

SYMBOL/ABBREVIATION EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE
		RIGHT–OF–WAY LINE
330	330	MAJOR CONTOUR
332	332	MINOR CONTOUR
TOB		TOP OF BANK
SB		STREAM BUFFER
OHE UP		OVERHEAD ELECTRIC LINE/POLE/GUY WIRE
		TREE LINE
		SIGN
		TRAFFIC FLOW ARROW
W	W	WATER LINE
SS		SANITARY SEWER LINE
FO		FIBER–OPTIC LINE
UE		UNDERGROUND ELECTRIC LINE
G		GAS LINE
SD		STORM DRAINAGE PIPE
SD		STORM DRAINAGE PIPE (TO REMOVE)
		CATCH BASIN
	D	JUNCTION BOX
		SANITARY SEWER MANHOLE
C/O		SEWER CLEANOUT
		FIRE HYDRANT
WV		WATER VALVE
		WATER BLOWOFF VALVE
		WATER METER VAULT
		GAS METER

NOTE:

1. REFER TO SHEET C1200 FOR PIPE/STRUCTURE TABLE

PIPE UPGRADE SOUTH PLAN & PROFILE

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SOUTH GREENSBORO STREET NCDOT STORM PIPE UPGRADE

CARRBORO, NORTH CAROLINA

CONSTRUCTION DRAWINGS

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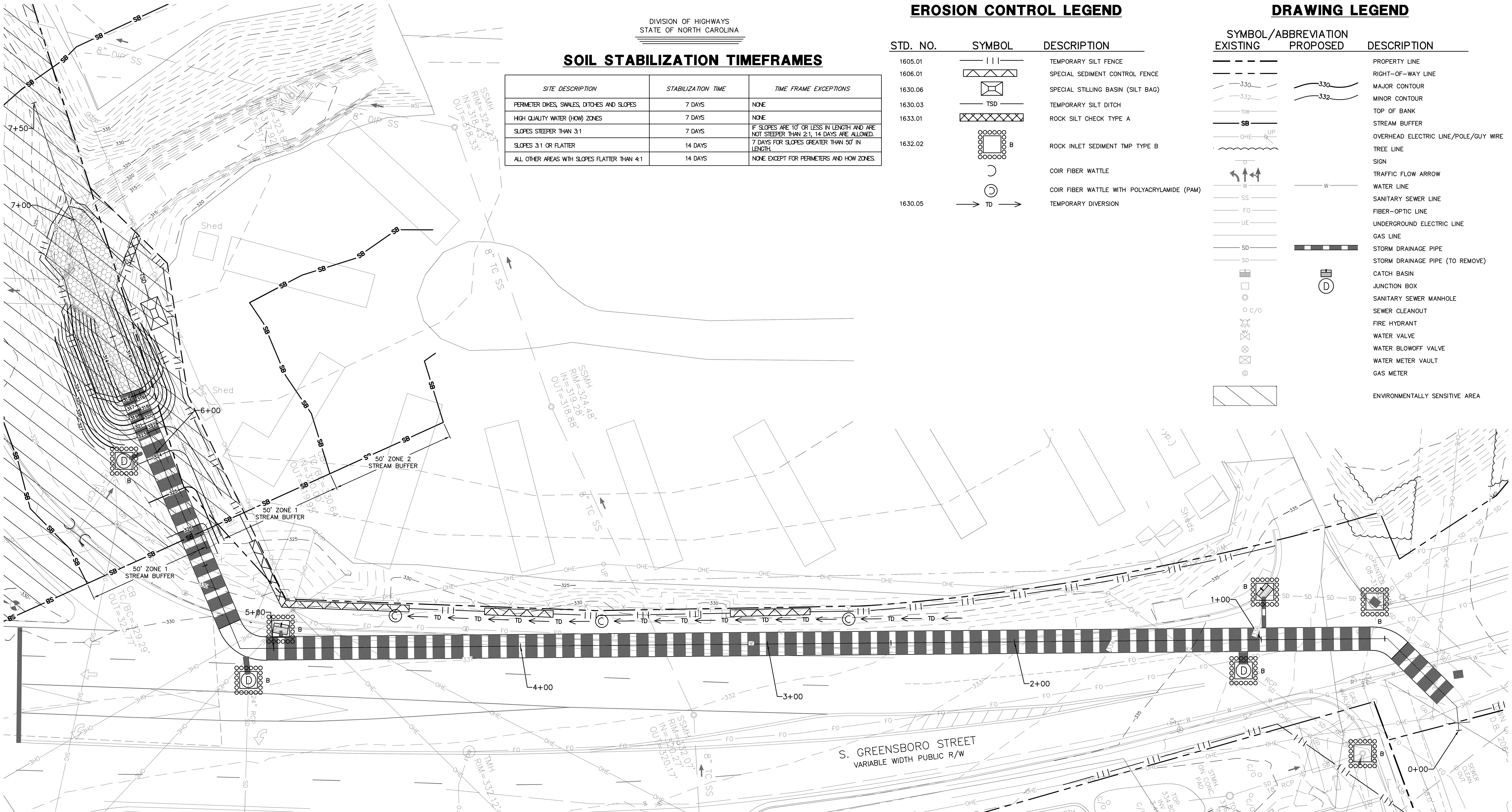
SHEET
C1202



DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE EXCEPT FOR PERIMETERS AND HQW ZONES.

EROSION CONTROL LEGEND

STD. NO.	SYMBOL	DESCRIPTION
1605.01		TEMPORARY SILT FENCE
1606.01		SPECIAL SEDIMENT CONTROL FENCE
1630.06		SPECIAL STILLING BASIN (SILT BAG)
1630.03	TSD	TEMPORARY SILT DITCH
1633.01		ROCK SILT CHECK TYPE A
1632.02	B	ROCK INLET SEDIMENT TMP TYPE B
		COIR FIBER WATTLE
		COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM)
1630.05	TD	TEMPORARY DIVERSION

DRAWING LEGEND

SYMBOL/ABBREVIATION EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE
		RIGHT-OF-WAY LINE
330	330	MAJOR CONTOUR
332	332	MINOR CONTOUR
TOB		TOP OF BANK
SB		STREAM BUFFER
OHE UP		OVERHEAD ELECTRIC LINE/POLE/GUY WIRE
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		SIGN
		TRAFFIC FLOW ARROW
W	W	WATER LINE
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		GAS LINE
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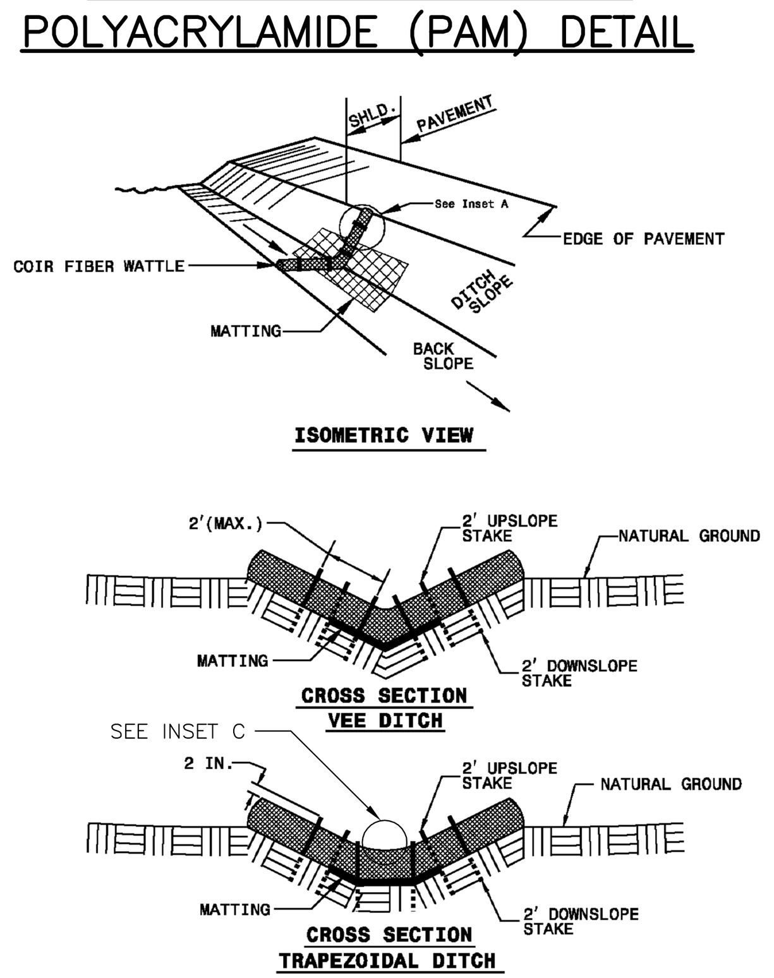
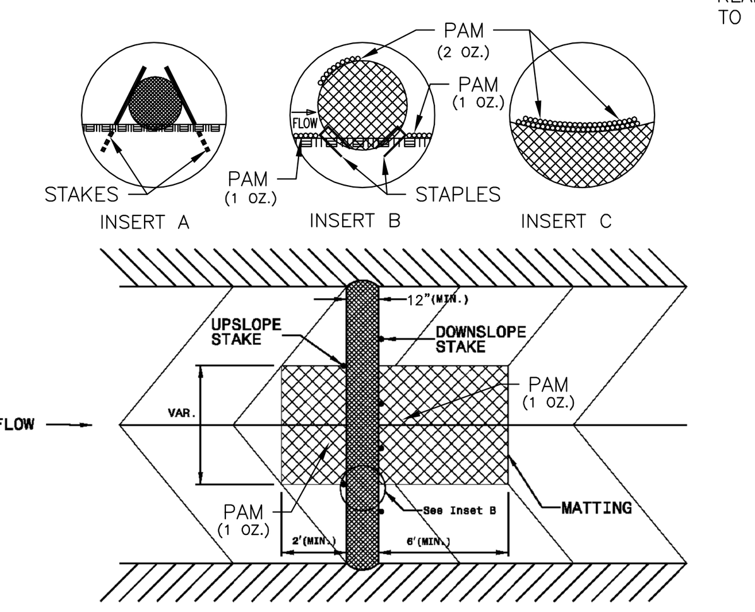
		SANITARY SEWER MANHOLE
C/O		SEWER CLEANOUT
		FIRE HYDRANT
WV		WATER VALVE
		WATER BLOWOFF VALVE
		WATER METER VAULT
		GAS METER
		ENVIRONMENTALLY SENSITIVE AREA

COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

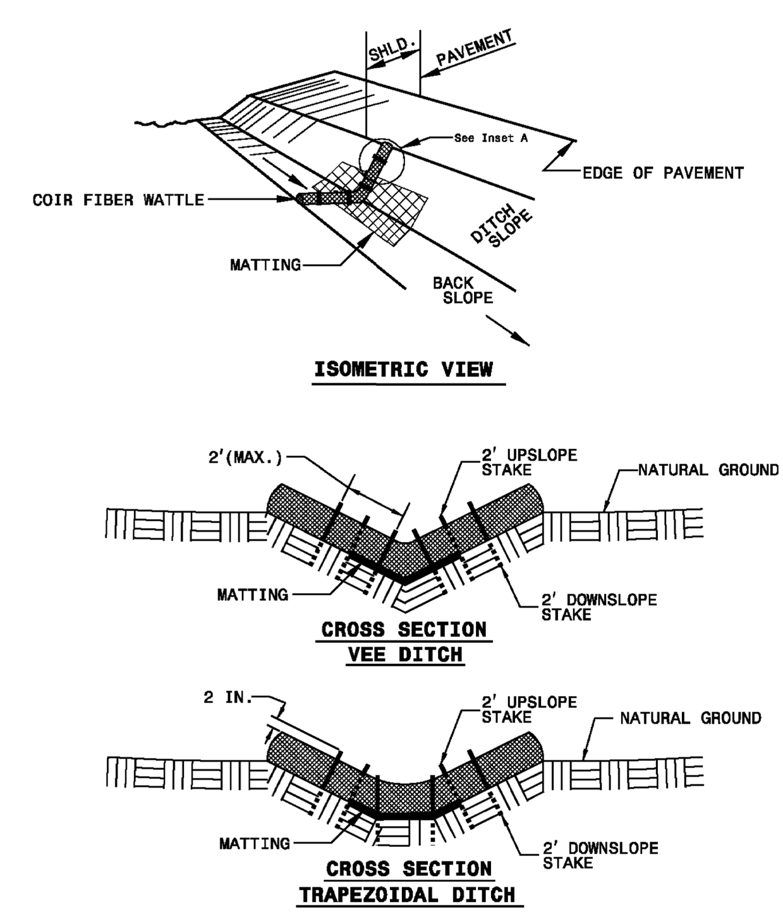


NOTES:

1. USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.
2. USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
3. ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
4. INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
5. PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
6. INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
7. INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATION.
8. PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.
9. INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 ONCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



COIR FIBER WATTLE DETAIL



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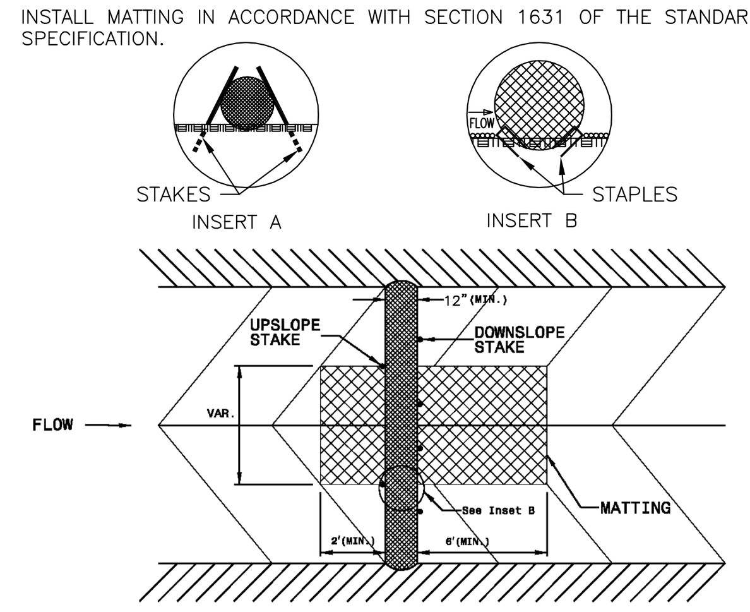


EROSION CONTROL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS 2012 STANDARD SPECIFICATIONS.
2. ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.
3. ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.
4. THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUAILTY.

APPROVED D. K. WAGONER
LEVEL III CERTIFIED EROSION CONTROL TECHNICIAN
3794
CERTIFCATE NO.

NC GRID NAD 83

EROSION CONTROL PLAN

20 0 10 20 40
(GRAPHIC SCALE IN FEET)
1 inch = 20 ft.

BALLENTINE ASSOCIATES, P.A.
221 PROVIDENCE ROAD, CHAPEL HILL, N.C. 27514
(919) 929 - 0481 (919) 489 - 4789

Ballentine Associates, P.A. CORPORATE SEAL C328 NORTH CAROLINA Chapel Hill

NUM	REVISIONS	DATE
1	PER NCDOT COMMENTS	24 MAY 16
2	PER NCDOT COMMENTS	13 JUN 16

OWNER INFORMATION
NCDOT
PO BOX 766
127 E CRESCENT SQUARE DR
GRAHAM, NC 27253
OWNERS REPRESENTATIVE:
CHUCK EDWARDS
PH. (336) 570-6833
FAX (336) 570-6873
EMAIL cnedwards@ncdot.gov

ISSUED	DATE
TO NCDOT	20 APR 16
TO NCDOT	24 MAY 16
TO NCDOT	13 JUN 16

SOUTH GREENSBORO STREET NCDOT STORM PIPE UPGRADE

CARRBORO, NORTH CAROLINA

CONSTRUCTION DRAWINGS

JOB NUMBER: 114023.10
DATE: 24 MAY 16
SCALE: AS NOTED
DRAWN BY: J.C.O.
REVIEWED BY: A.R.S.

SHEET
C1301

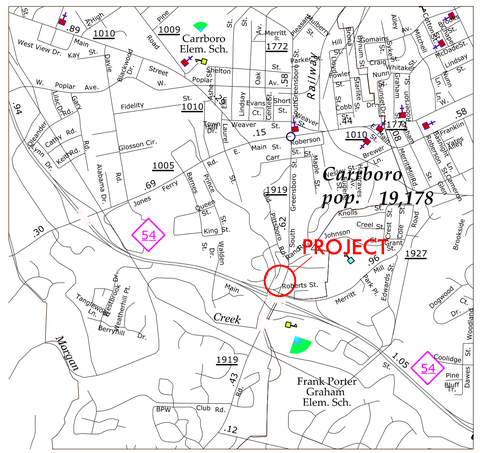
N:\Projects\114023.00 South Green\114023.10 -NCDOT Pipe Upgrade\1__Dwg\BA-Model Files\C1301-Erosion Control-SG Pipe Upgrade.dwg, 6/13/2016 12:08:50 PM, Dillons

09/08/99

TIP PROJECT:

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUFFER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.		HYD 1	

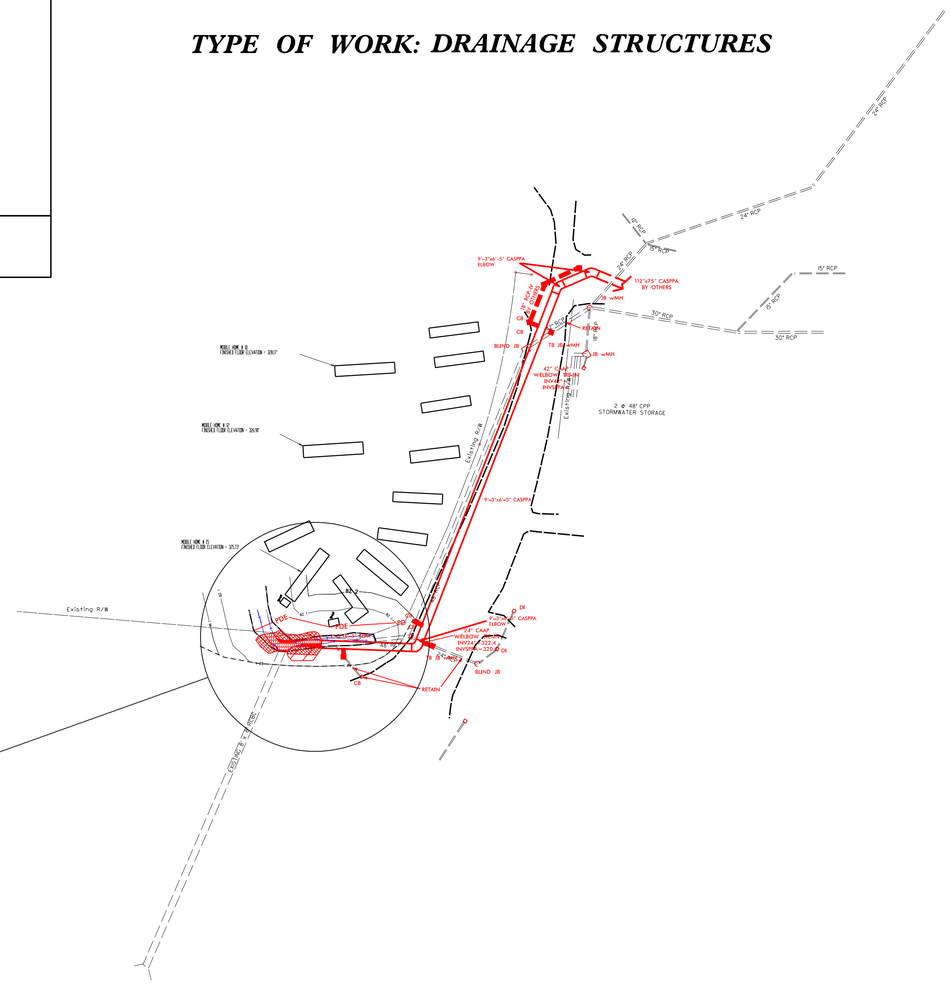
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

LOCATION: SOUTH GREENSBORO STREET JUST NORTH OF NC 54 IN CARRBORO

TYPE OF WORK: DRAINAGE STRUCTURES

PERMIT DRAWING
SHEET 1 OF 4

NAD 83/95



SITE 1

GRAPHIC SCALES	DESIGN DATA	PROJECT LENGTH
	ADT 2013 = ADT 2033 = DHV = D = T = V (SHOULDER) = V (CURB & GUTTER) = * (TTST % + DUAL %) FUNC. CLASS =	LENGTH ROADWAY TIP PROJECT LENGTH STRUCTURES TIP PROJECT TOTAL LENGTH TIP PROJECT

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

PROJECT ENGINEER

PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

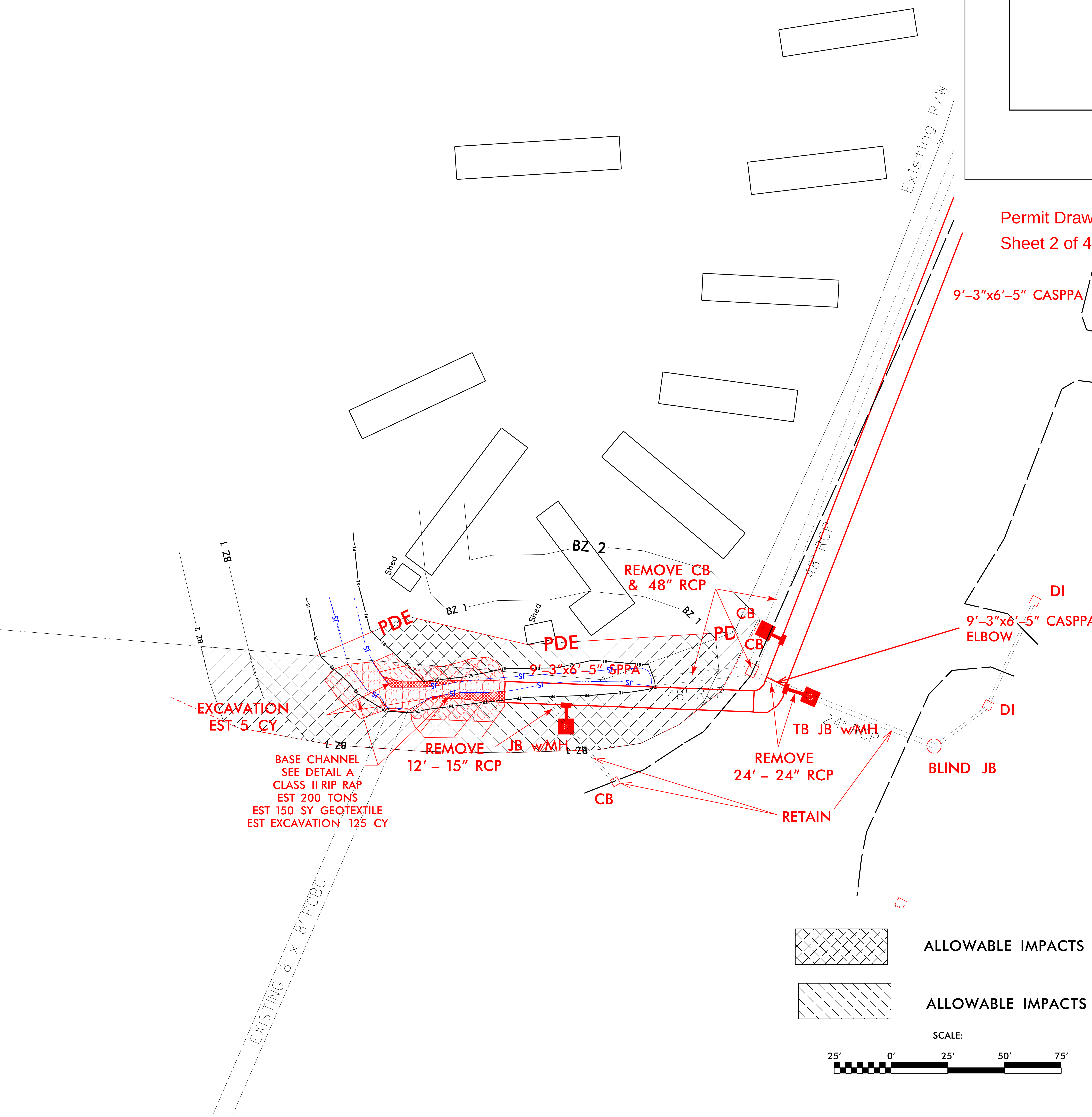
P.E.
SIGNATURE:

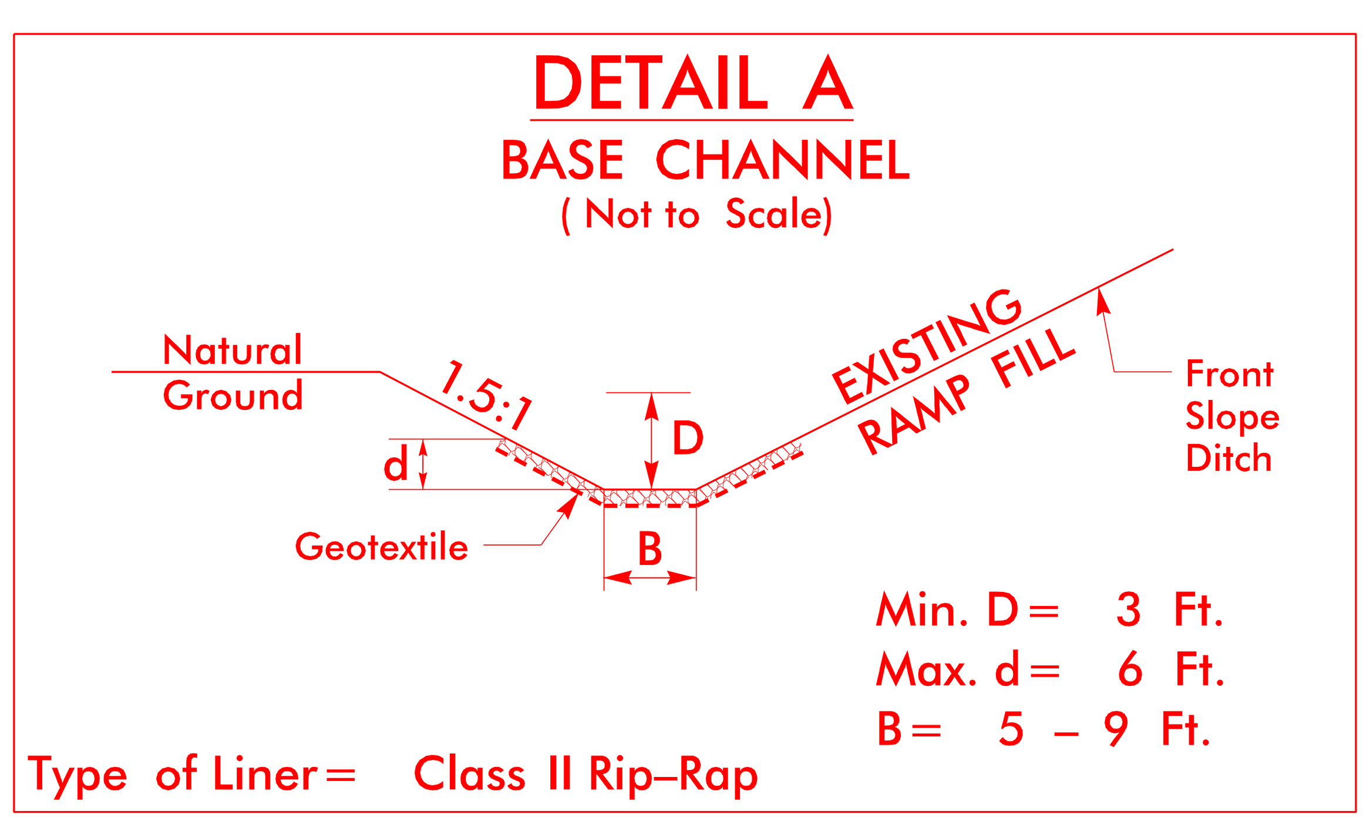
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
___________	HYD 2
R/W SHEET NO. ____	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing
Sheet 2 of 4





ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

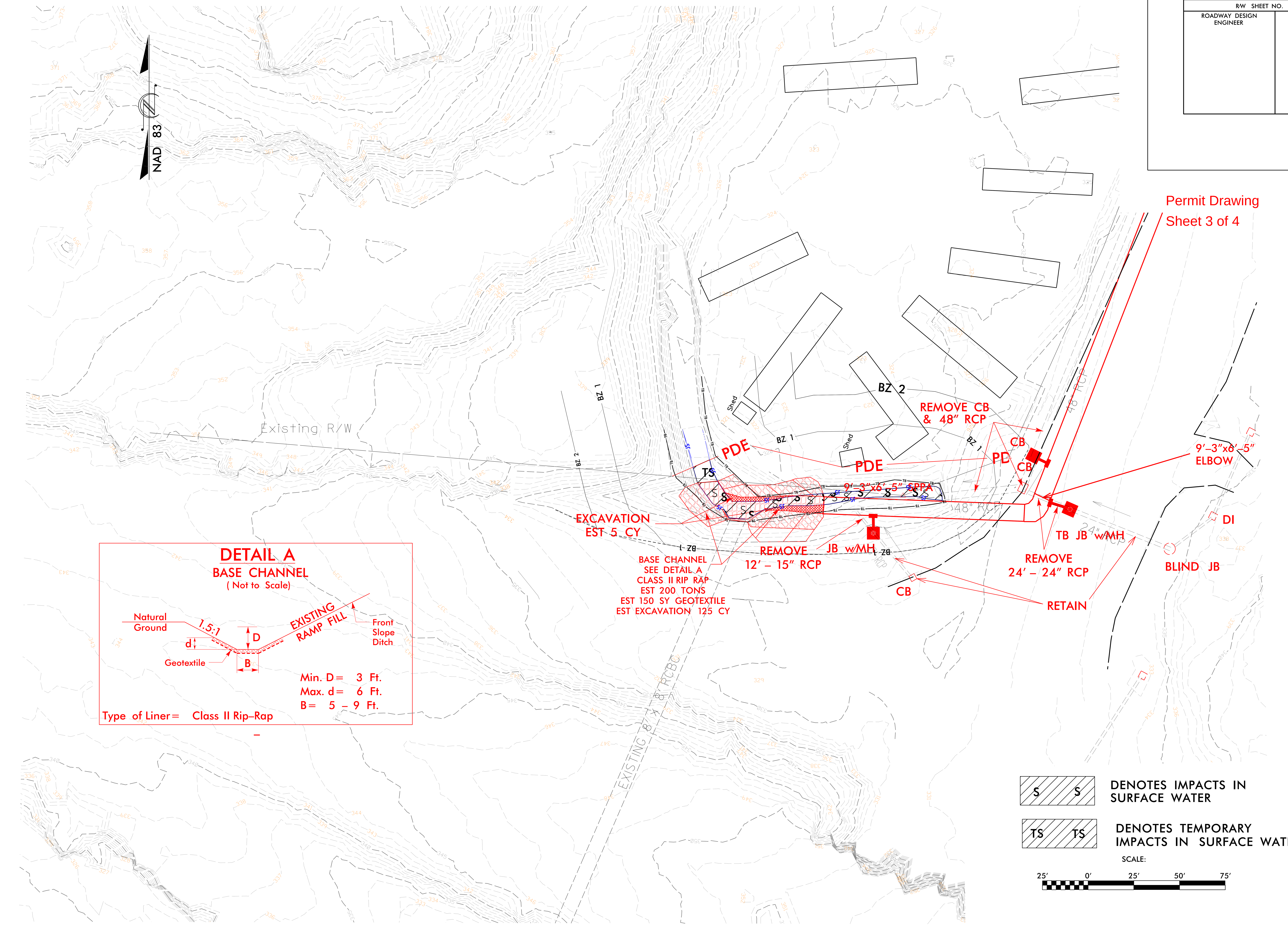
SCALE:

25' 0' 25' 50' 75'

REVISIONS

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
	HYD 3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER


NAD 83
Existing R/W
BZ 1
BZ 2
Shed
PDE
PD
TS
9'–3"x6'–5" SPPA
REMOVE CB & 48" RCP
CB
48" RCP
9'–3"x6'–5" ELBOW
DI
TB JB w/MH
24" RCP
BLIND JB
REMOVE 24' – 24" RCP
RETAIN
JB w/MH
REMOVE 12' – 15" RCP
EXCAVATION EST 5 CY
BASE CHANNEL
SEE DETAIL A
CLASS II RIP RAP
EST 200 TONS
EST 150 SY GEOTEXTILE
EST EXCAVATION 125 CY
EXISTING 8' X 8' RCBC
DETAIL A
BASE CHANNEL
(Not to Scale)
Natural Ground
1.5:1
D
d
EXISTING RAMP FILL
Front Slope Ditch
Geotextile
B
Min. D = 3 Ft.
Max. d = 6 Ft.
B = 5 – 9 Ft.
Type of Liner = Class II Rip–Rap

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SCALE:

25' 0' 25' 50' 75'

REVISIONS

8/17/99

$$$$SYSTIME$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	9'-3"x6'-5" CASPPA	NW Quad NC 54	X			6944	877	7821					
	& STREAM WORK												
TOTAL:						6944	877	7821	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

ORANGE COUNTY
PROJECT: SOUTH GREENSBORO STREET
IMPROVED DRAINAGE SYSTEM

HYD 4

2/25/2016
SHEET 4 OF 4

Rev. May 2006

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
ALL	MONDAY–FRIDAY 6:00 A.M.–9:00 A.M
ALL	MONDAY–FRIDAY 4:00 P.M.–6:00 P.M.

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

ALL

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31ST TO 9:00 A.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 9:00 A.M. THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 9:00 A.M. MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 9:00 A.M. TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 9:00 A.M. THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 A.M. THE TUESDAY AFTER INDEPENDENCE DAY.
6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 9:00 A.M. TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 9:00 A.M. MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 A.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC MANAGEMENT PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

H) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

I) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

PAVEMENT EDGE DROPOFF REQUIREMENTS

J) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP–OFF AS FOLLOWS:

BACKFILL DROP–OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP–OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

K) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8–11) 200 FT. IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.TRAFFIC PATTERN ALTERATIONS

L) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

M) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

N) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS. PROVIDE SIGNING REQUIRED FOR THE OFF–SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

O) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION. COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF–SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

P) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

Q) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8–2) AND/OR "BUMP" SIGNS (W8–1) 200 FT. IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

R) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

TRAFFIC CONTROL DEVICES

S) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON–CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

T) PLACE ADDITIONAL SETS OF THREE DRUMS PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

U) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
ALL	PAINT	N/A

V) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

W) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

X) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

Y) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).

TRAFFIC CONTROL PHASING PLAN

PHASE 1

- STEP 1. INSTALL WORK ZONE ADVANCE WARNING SIGNS PER STANDARD DRAWING 1101.01, SHEET 1.
- STEP 2. USING STANDARD DRAWING 1101.02, SHEETS 1,2,3, INSTALL TEMPORARY TRAFFIC CONTROL DEVICES, CLOSE NORTHBOUND THRU LANE ON SMITH LEVEL ROAD, INSTALL TEMPORARY PAVEMENT MARKINGS, MODIFY TRAFFIC SIGNAL AS SHOWN ON SHEET SIG 1, PLACE WATER FILLED BARRIER AND PLACE TRAFFIC IN PATTERN AS SHOWN ON SHEETS TMP 2 AND TMP 3.
- STEP 3. COMPLETE WORK WITHIN PHASE 1 WORK LIMITS AS SHOWN ON SHEETS TMP 2 AND TMP 3.

PHASE 2

(PHASE 2 WORK MAY BE PERFORMED CONCURRENT WITH PHASE 1) REFER TO CONTRACT ICT

- STEP 1. INSTALL SOUTH GREENSBORO STREET ROAD CLOSURE AND OFF–SITE DETOUR AS SHOWN ON SHEET TMP 4.
- STEP 2. PLACE WATER FILLED BARRIER, TEMPORARY TRAFFIC CONTROL DEVICES, AND PEDESTRIAN DETOUR AS SHOWN ON SHEET TMP 5.
- STEP 3. COMPLETE ALL REMAINING WORK WITH EXCEPTION OF ASPHALT MILLING AND PLACEMENT OF FINAL ASPHALT SURFACE COURSE.
- STEP 4. REMOVE WATER FILLED BARRIER, RESTORE TRAFFIC MARKINGS AND TRAFFIC SIGNAL TO ORIGINAL PATTERN AND PLACE TRAFFIC ON SAME. PLACE BUS STOP IN OPERATION. RESTORE PEDESTRIAN TRAFFIC TO ORIGINAL PATTERN.

PHASE 3

- STEP 1. USING STANDARD DRAWING 1101.02, SHEETS 1,2,3, INSTALL TEMPORARY TRAFFIC CONTROL DEVICES, COMPLETE ASPHALT MILLING, PLACE FINAL LIFT OF ASPHALT SURFACE COURSE, FINAL THERMOPLASTIC PAVEMENT MARKINGS.
- STEP 2. OPEN ALL TRAVEL LANES TO ORIGINAL PATTERN.

REV. SEPTEMBER 2011

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" PROJECT SERVICES UNIT – N.C. DEPARTMENT OF TRANSPORTATION – RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD, NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY–DRUM
1205.01	PAVEMENT MARKINGS – LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS – TWO–LANE AND MULTI–LANE ROADWAYS
1205.04	PAVEMENT MARKINGS – INTERSECTIONS
1205.05	PAVEMENT MARKINGS – TURN LANES
1205.06	PAVEMENT MARKINGS – LANE DROPS
1205.07	PAVEMENT MARKINGS – PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS – SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS – PAINTED ISLANDS
1205.13	PAVEMENT MARKINGS – LANE REDUCTIONS

TRAFFIC MANAGEMENT PLAN

BALLENTINE ASSOCIATES, P.A.
221 PROVIDENCE ROAD, CHAPEL HILL, N.C. 27514
(919) 929 – 0481 (919) 489 – 4789

Ballentine Associates, P.A. CORPORATE SEAL C328 NORTH CAROLINA Chapel Hill

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036849 ASHTON R. SMITH
DocuSigned by: Ashton Smith
7/5/2016

NUM	REVISIONS	DATE
1	PER NCDOT COMMENTS	24 MAY 16
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OWNER INFORMATION
NCDOT
PO BOX 766
127 E CRESCENT SQUARE DR
GRAHAM, NC 27253
OWNERS REPRESENTATIVE:
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TO NCDOT	20 APR 16
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SOUTH GREENSBORO STREET NCDOT STORM PIPE UPGRADE

CARRBORO, NORTH CAROLINA

CONSTRUCTION DRAWINGS

JOB NUMBER: 114023.10
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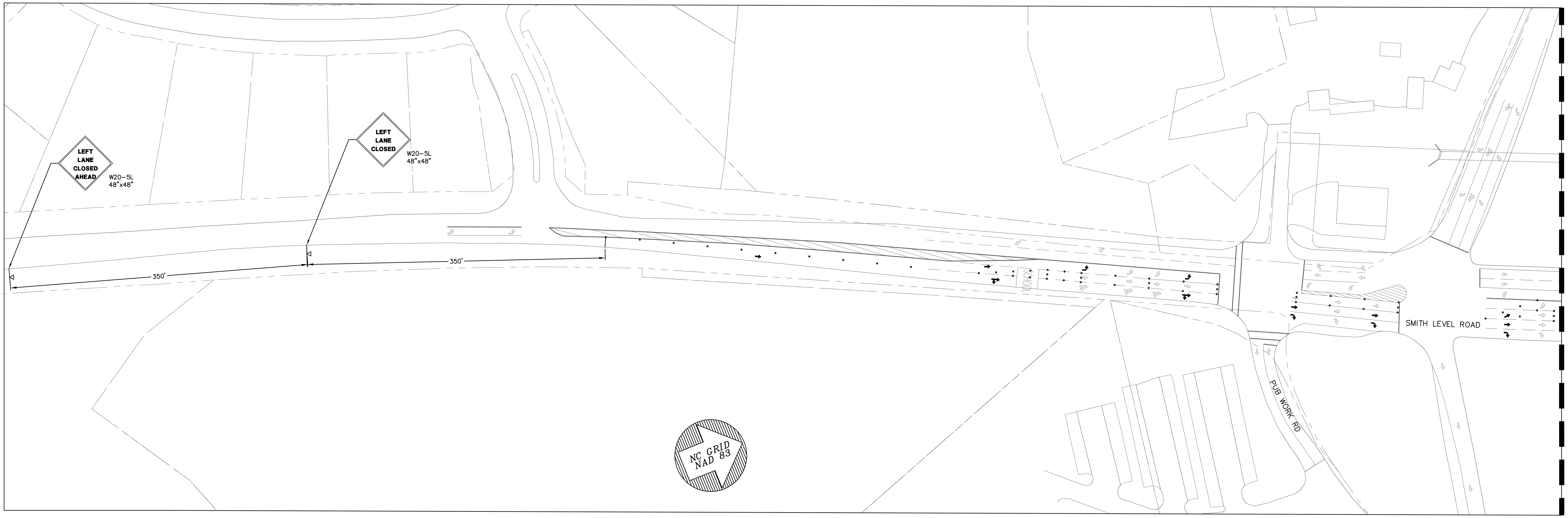
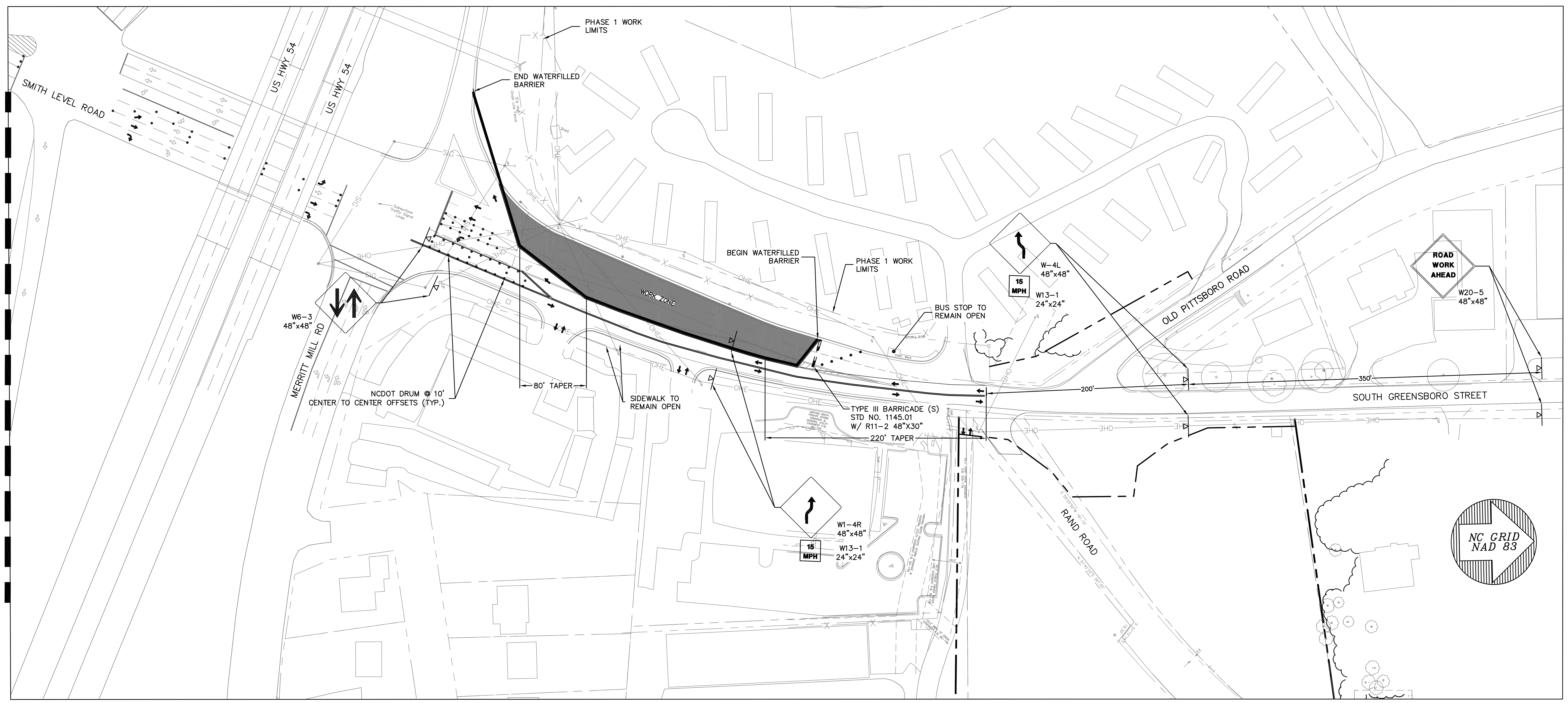
SCALE: AS NOTED
DRAWN BY: J.C.O.
REVIEWED BY: A.R.S.

SHEET
TMP 1





DRAWING LEGEND

SYMBOL	DESCRIPTION
(box)	FLASHING ARROW BOARD (TYPE C) (96" X 48" MIN.), "CAUTION MODE"
(flag)	PORTABLE SIGN
(arrow)	DIRECTION OF TRAFFIC FLOW
(dot)	NCDOT DRUM

TRAFFIC MANAGEMENT PLAN
PHASE 1 OVERVIEW

50 0 25 50 100
(GRAPHIC SCALE IN FEET)
1 inch = 60 ft.

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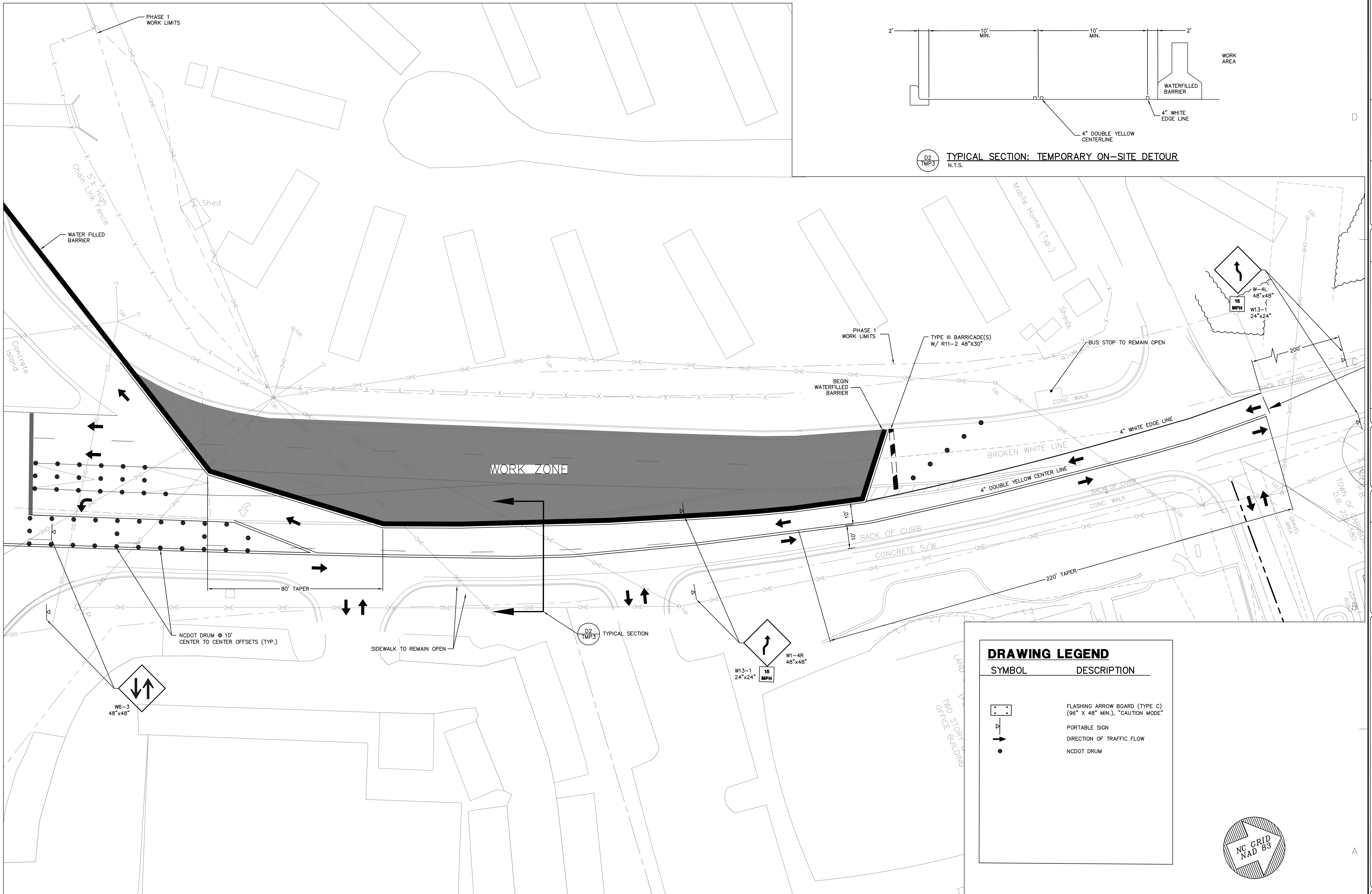
SHEET
TMP 2



TRAFFIC MANAGEMENT PLAN
PHASE 1 ENLARGEMENT

20 0 10 20 40
(GRAPHIC SCALE IN FEET)
1 inch = 20 ft.

BALLENTINE ASSOCIATES, P.A.
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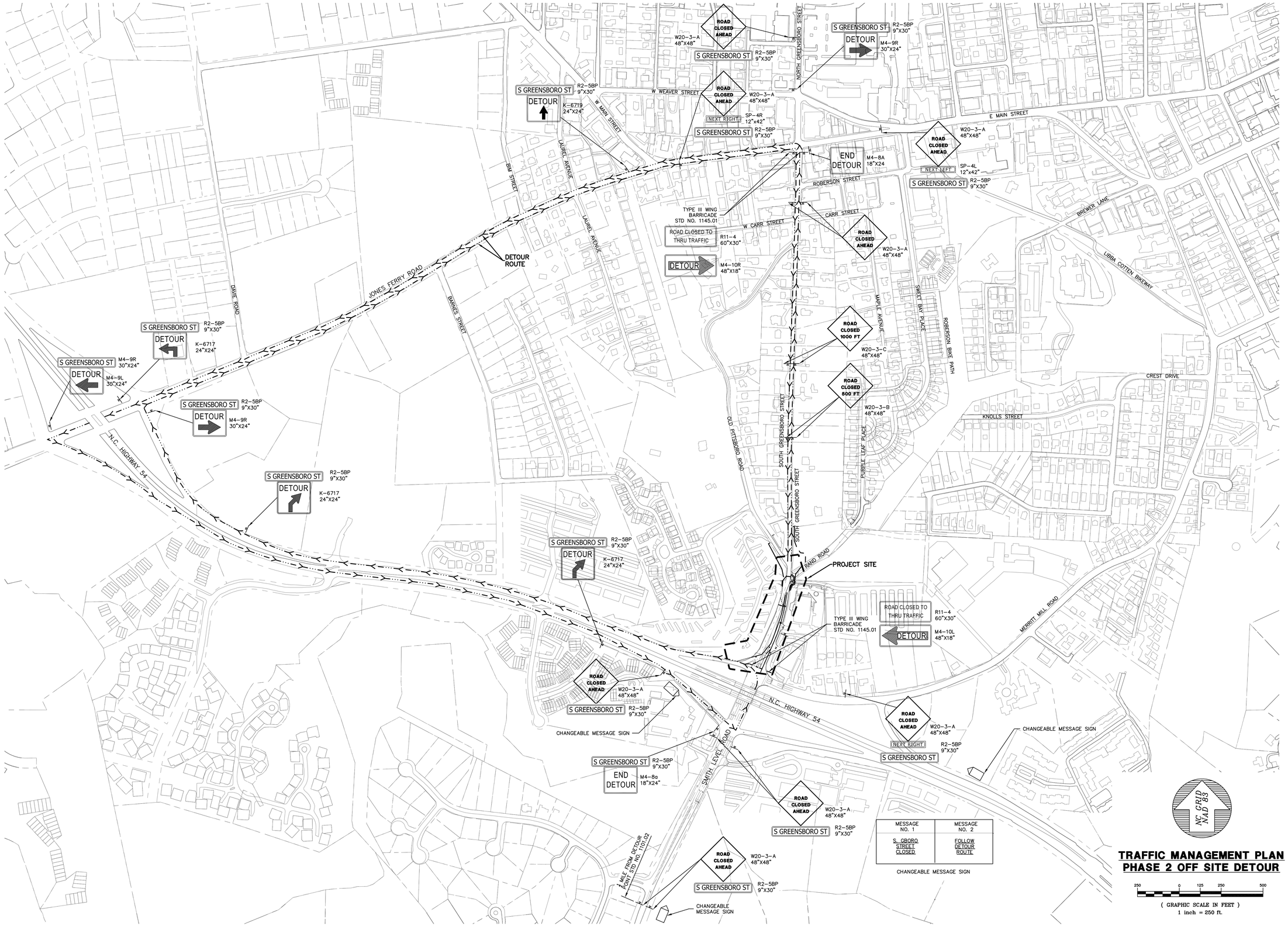
ISSUED	DATE
TO NCDOT	20 APR 16
TO NCDOT	24 MAY 16
TO NCDOT	13 JUN 16

SOUTH GREENSBORO STREET NCDOT STORM PIPE UPGRADE
CARRBORO, NORTH CAROLINA
CONSTRUCTION DRAWINGS

JOB NUMBER: 114023.10
DATE: 24 MAY 16
SCALE: AS NOTED
DRAWN BY: J.C.O.
REVIEWED BY: A.R.S.

SHEET
TMP 3

N:\Projects\114023.00 South Green\114023.10 -NCDOT Pipe Upgrade\1__Dwg\BA-Model Files\C1401-Traffic Control-SG Pipe Upgrade.dwg, 6/13/2016 3:57:27 PM, Dillons



TRAFFIC MANAGEMENT PLAN
PHASE 2 OFF SITE DETOUR

(GRAPHIC SCALE IN FEET)
1 inch = 250 ft.

BALLENTINE ASSOCIATES, P.A.
211 HILLSBOROUGH ROAD, CHAPEL HILL, N.C. 27514
(919) 929 - 0481 (919) 489 - 4799

Ballentine Associates, P.A. CORPORATE SEAL C328 NORTH CAROLINA Chapel Hill

NORTH CAROLINA PROFESSIONAL SEAL 036849 ENGINEER ASHTON R. SMITH Digitally Signed by: ASHTON R. SMITH 7/5/2016

NUM	REVISIONS	DATE
1	PER NCDOT COMMENTS	24 MAY 16
2	PER NCDOT COMMENTS	13 JUN 16

ISSUED	DATE
TO NCDOT	20 APR 16
TO NCDOT	24 MAY 16
TO NCDOT	13 JUN 16

OWNER INFORMATION
NCDOT
PO BOX 766
127 E CRESCENT SQUARE DR
GRAHAM, NC 27253
OWNERS REPRESENTATIVE:
CHUCK EDWARDS
PH. (336) 570-6833
FAX (336) 570-6873
EMAIL cmedwards@ncdot.gov

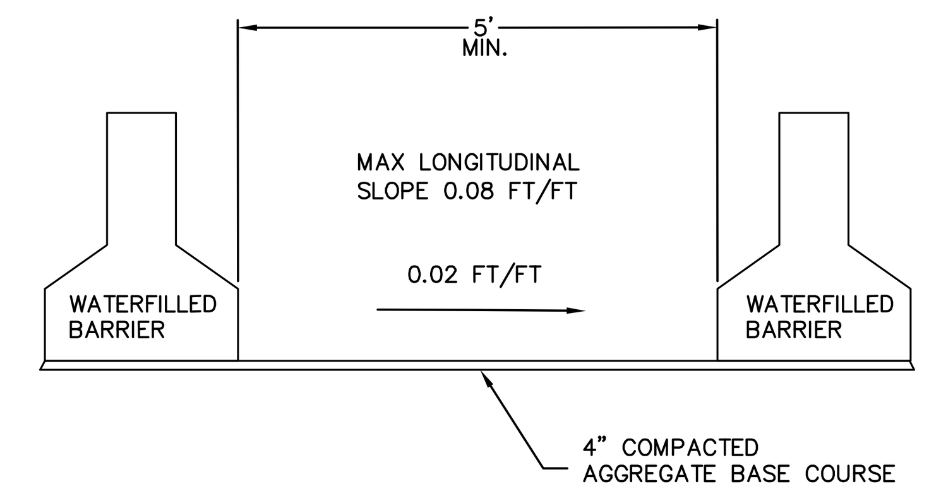
SOUTH GREENSBORO STREET
NCDOT STORM PIPE UPGRADE
CARRBORO, NORTH CAROLINA

CONSTRUCTION DRAWINGS

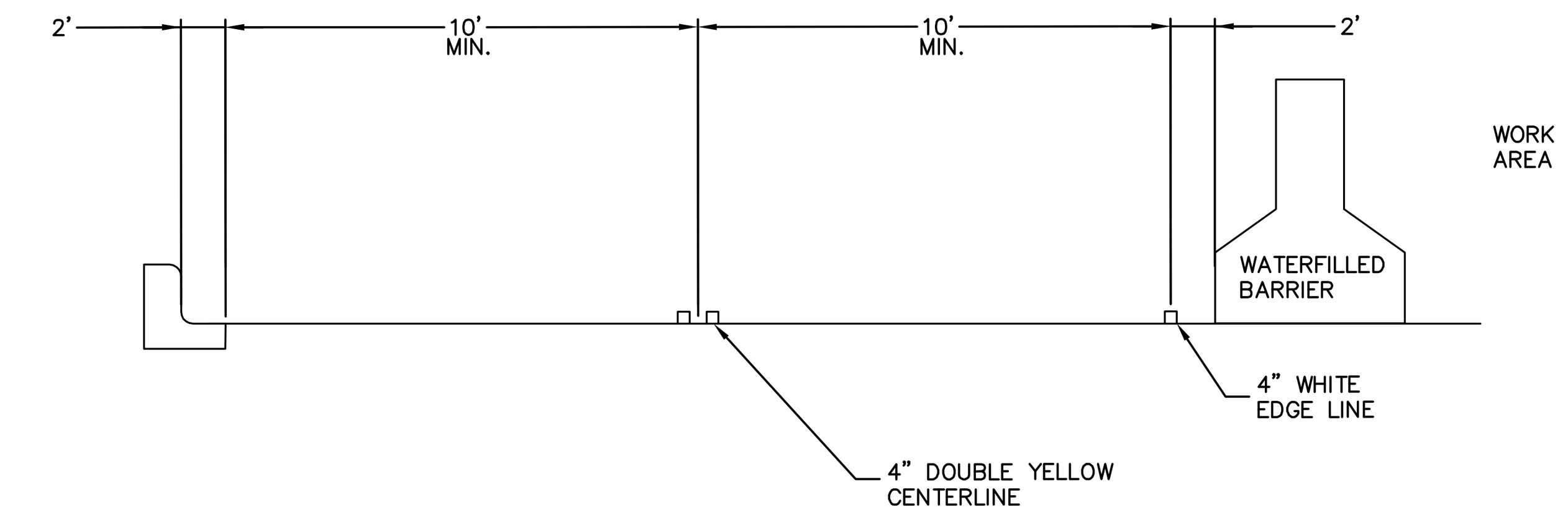
JOB NUMBER: 114023.10
DATE: 24 MAY 16
SCALE: AS NOTED
DRAWN BY: J.C.O.
REVIEWED BY: A.R.S.

SHEET
TMP 4

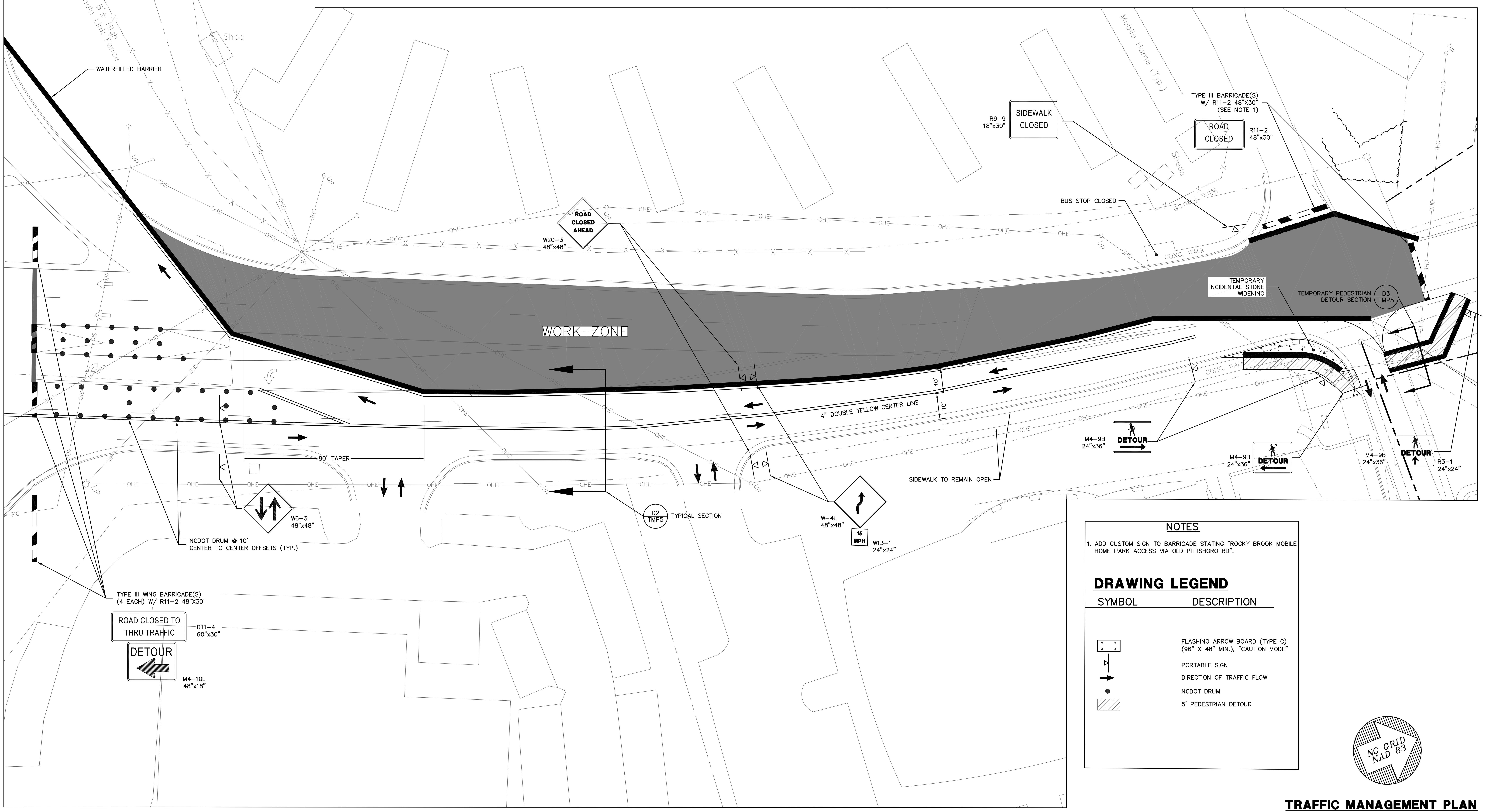
N:\Projects\114023.00 South Green\114023.10 -NCDOT Pipe Upgrade\1_ Dwg\BA-Model Files\C401-Traffic Control-SG Pipe Upgrade.dwg, 6/13/2016 4:12:22 PM, DBrons



D3 / TMP5 TEMPORARY PEDESTRIAN DETOUR SECTION
NTS



D2 / TMP5 TYPICAL SECTION: TEMPORARY ON-SITE DETOUR
NTS



NOTES

1. ADD CUSTOM SIGN TO BARRICADE STATING "ROCKY BROOK MOBILE HOME PARK ACCESS VIA OLD PITTSBORO RD".

DRAWING LEGEND

SYMBOL	DESCRIPTION
(box)	FLASHING ARROW BOARD (TYPE C) (96" X 48" MIN.), "CAUTION MODE"
(flag)	PORTABLE SIGN
(arrow)	DIRECTION OF TRAFFIC FLOW
(dot)	NCDOT DRUM
(hatch)	5' PEDESTRIAN DETOUR

NC GRID NAD 83

TRAFFIC MANAGEMENT PLAN
PHASE 2 ENLARGEMENT

20 0 10 20 40
(GRAPHIC SCALE IN FEET)
1 inch = 20 ft.

BALLENTINE ASSOCIATES, P.A.
221 PROVIDENCE ROAD, CHAPEL HILL, N.C. 27514
(919) 929 - 0481 (919) 489 - 4789

Ballentine Associates, P.A. CORPORATE SEAL C328 NORTH CAROLINA Chapel Hill

NORTH CAROLINA PROFESSIONAL SEAL 036849 ENGINEER ASHTON R. SMITH
DocuSigned by: Ashton Smith C9D723EB3DEF400... 7/5/2016

NUM	REVISIONS	DATE
1	PER NCDOT COMMENTS	24 MAY 16
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OWNER INFORMATION
NCDOT
PO BOX 766
127 E CRESCENT SQUARE DR
GRAHAM, NC 27253
OWNERS REPRESENTATIVE:
CHUCK EDWARDS
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SOUTH GREENSBORO STREET NCDOT STORM PIPE UPGRADE

CARRBORO, NORTH CAROLINA

CONSTRUCTION DRAWINGS

JOB NUMBER: 114023.10
DATE: 24 MAY 16
SCALE: AS NOTED
DRAWN BY: J.C.O.
REVIEWED BY: A.R.S.

SHEET
TMP 5

PROJECT REFERENCE NO.	SHEET NO.
07-0571	Sig. 2.0

PHASING DIAGRAM

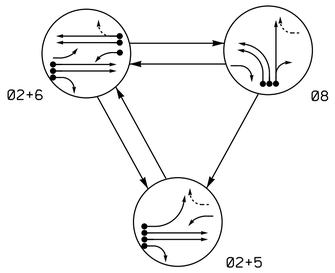
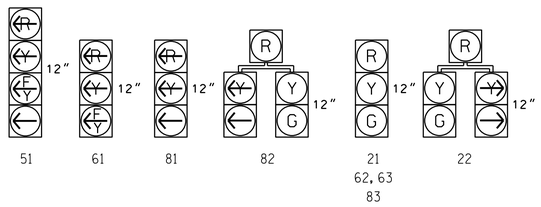


TABLE OF OPERATION

SIGNAL FACE	PHASE 02+5	PHASE 02+6	PHASE 08	FLASH
21	G	G	R	Y
22	G	G	R	Y
51	←	←	R	R
61	F Y	F Y	R	R
62,63	R	G	R	Y
81	R	R	←	R
82	R	R	G	R
83	R	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



2070 LOOP & DETECTOR INSTALLATION

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A,2B,2C	6X6	70	Exist	-	2	Y	Y	-	-	-	-	-
5A	6X15	50	Exist	-	5	Y	Y	-	-	5	-	-
6A,6B	6X6	70	4	Y	6	Y	Y	-	-	-	-	-
6C	6X40	0	2-4-2	Y	6	Y	Y	-	-	-	-	-
8A,8B,8C	6X25	Exist	Exist	-	8	Y	Y	-	-	3	-	-
8D,8E,8F	6X25	Exist	Exist	-	8	Y	Y	-	-	-	-	-
8G,8H,8I	6X25	Exist	Exist	-	8	Y	Y	-	-	10	-	-
S01	6X6	300	5	Y	-	-	-	-	-	-	Y	-
S02	6X6	300	5	Y	-	-	-	-	-	-	Y	-

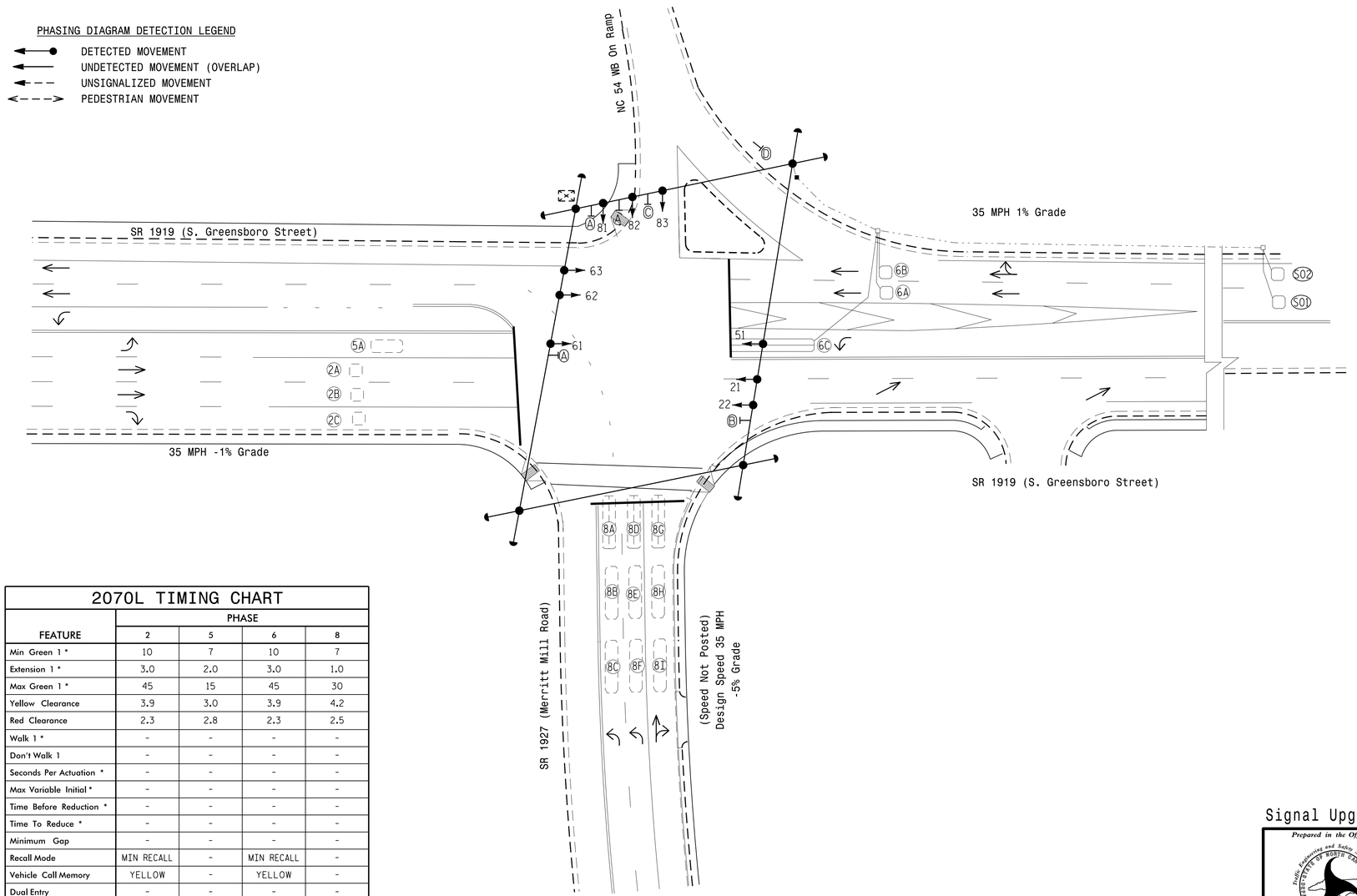
3 Phase
Fully Actuated
Chapel Hill - Carrboro Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
5. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT



2070L TIMING CHART

FEATURE	PHASE 2	PHASE 5	PHASE 6	PHASE 8
Min Green 1 *	10	7	10	7
Extension 1 *	3.0	2.0	3.0	1.0
Max Green 1 *	45	15	45	30
Yellow Clearance	3.9	3.0	3.9	4.2
Red Clearance	2.3	2.8	2.3	2.5
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
⊓↓	Pedestrian Signal Head With Push Button & Sign	■↓
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
- - - -	2-in Underground Conduit	- - - -
N/A	Right of Way	— — —
→	Directional Arrow	→
Ⓐ	Left Arrow "ONLY" Sign (R3-5L)	Ⓐ
Ⓑ	Right Arrow "ONLY" Sign (R3-5R)	Ⓑ
Ⓒ	Combined Through and Right Arrow Sign (R3-6R)	Ⓒ
Ⓓ	"YIELD" Sign (R1-2)	Ⓓ

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:
Traffic Engineering and Safety Systems Branch
Network and Geometrics Section
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Pkwy, Garner, NC 27529

SR 1919 (S. Greensboro Street)
At
SR 1927 (Merritt Mill Road)/
NC 54 WB On Ramp

Division 7 Orange County Chapel Hill

PLAN DATE: July 2016 REVIEWED BY:
PREPARED BY: H. Kitchen REVIEWED BY:

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

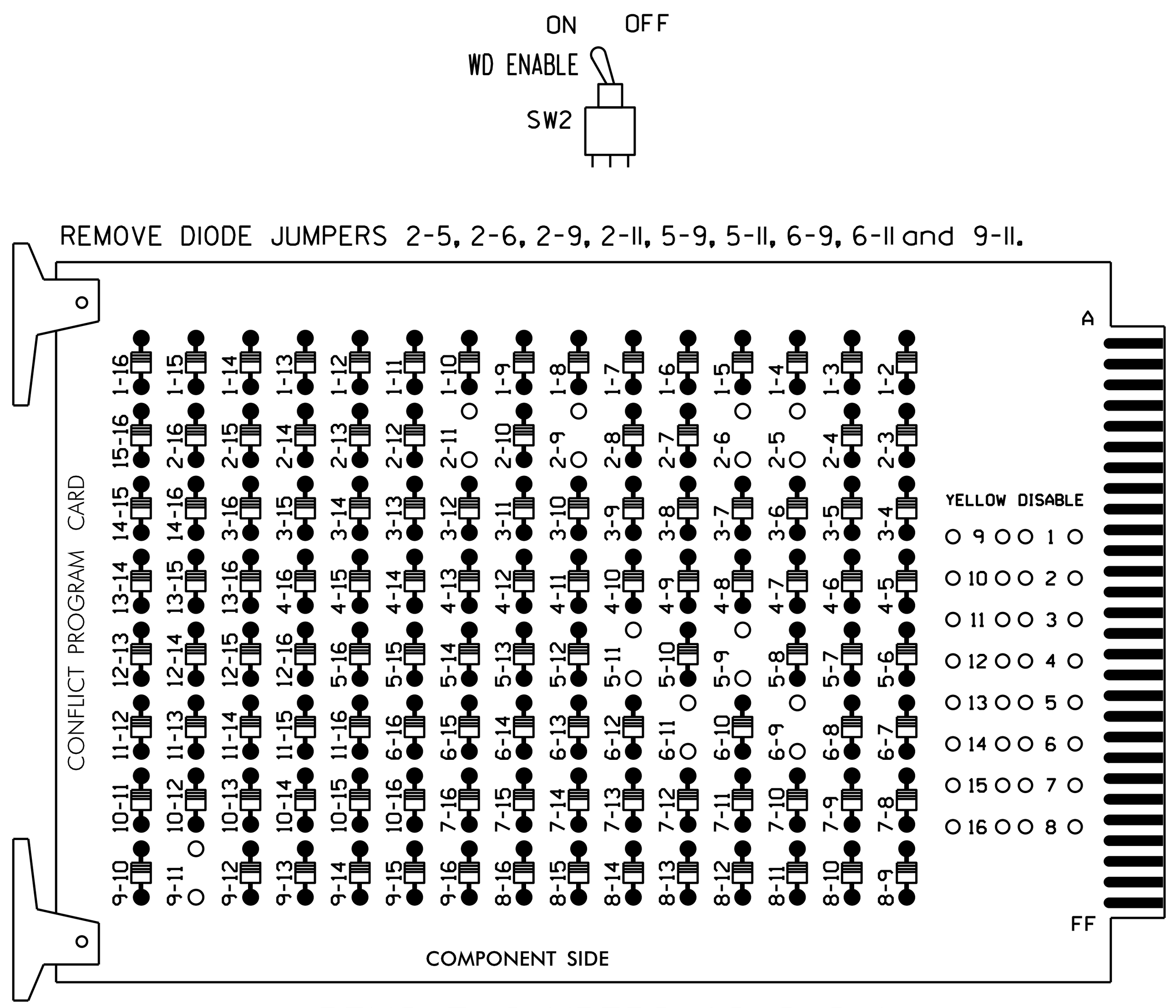
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH
DocuSigned by: Ryan W. Hough 43020FAA2654C3 7/1/2016 DATE

SIG. INVENTORY NO. 07-0571

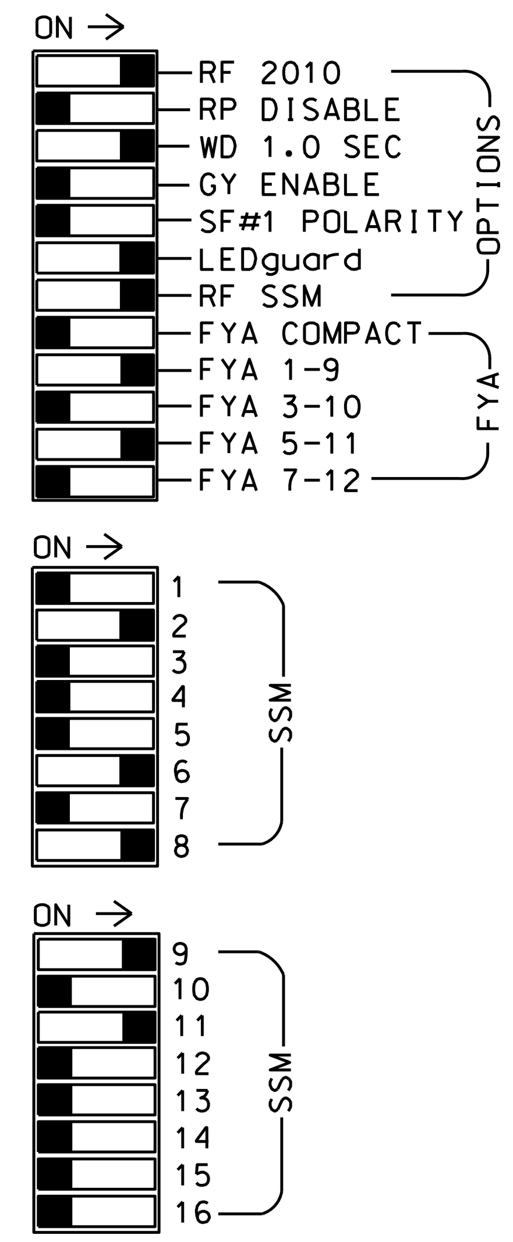
06-JUL-2016 13:14
S:\Traffic\Signals\Library\Div07\07-0571_sig_dsn_20160701.dgn
rwhough

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN



■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 1,3,4, 5,7,10,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Enable Simultaneous Gap-Out, for all phases.
4. Program phases 2 and 6, for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash, and overlap 1 as WAG Overlaps.
6. The cabinet and controller are part of the Chapel Hill-Carrboro Signal System.

EQUIPMENT INFORMATION

CONTROLLER..............2070L
CABINET.................332 /W/ AUX
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S2,S5,S6,S8,S9,S12
PHASES USED.............2,5,6,8
OVERLAP "A".............2
OVERLAP "B".............NOT USED
OVERLAP "C".............5+6
OVERLAP "D".............NOT USED

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8			S8P	S9	S10	S11	S12	S13	S14
PHASE	1	2	2 PED	3	4	4 PED	5★	6	6 PED	7	8			8 PED	OLA★	OLB	SPARE	OLC★	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	NU	NU	51	62,63	NU	NU	81	22,82	82,83	NU	61	NU	NU	51	NU	NU
RED		128						134					107							
YELLOW		129					✱	135					108							
GREEN		130						136					109							
RED ARROW											107				A121			A114		
YELLOW ARROW											108	108			A122			A115		
FLASHING YELLOW ARROW															A123			A116		
GREEN ARROW							133				109	109								

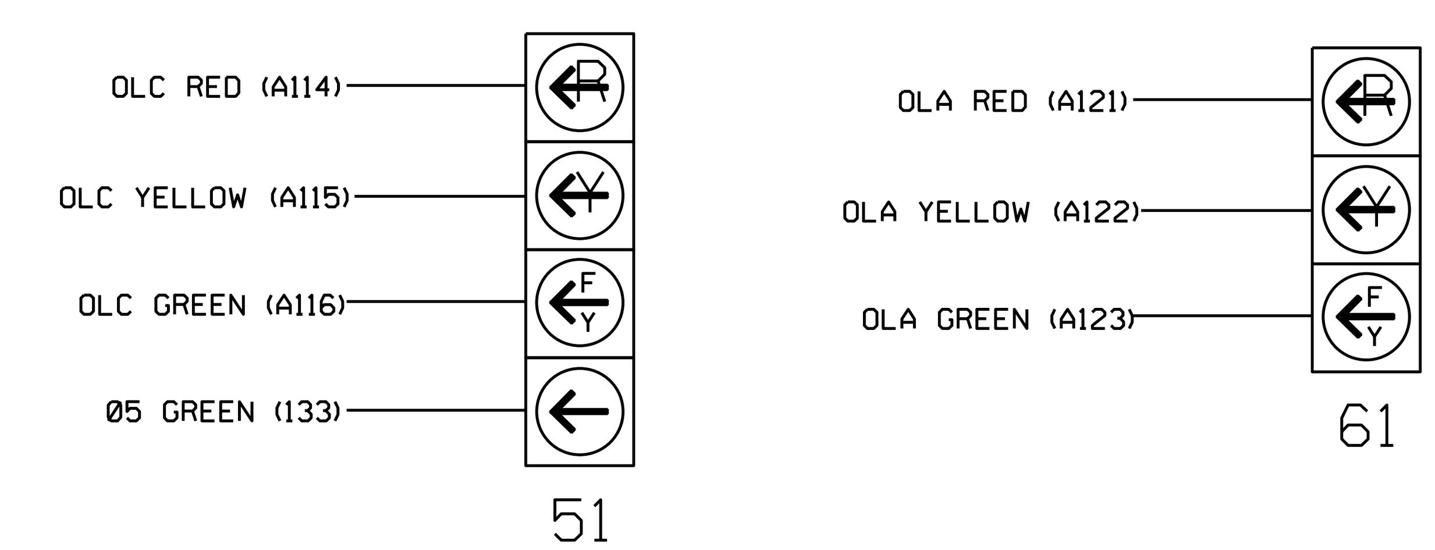
NU = Not Used

✱ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail below.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

1. The sequence display for this signal requires special logic programming. See sheet 2 of 2 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	ø 2 2A,2B,2C	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SYS. DET. S01	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L		NOT USED							SYS. DET. S02					ST DC ISOLATOR
FILE "J"	U	ø 5 5A	ø 6 6A,6B	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	ø 8 8A,8B,8C	ø 8 8G,8H,8I	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	ø 6 6C				ø 8 8D,8E,8F	NOT USED							

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A,2B,2C	TB2-5,6	I2U	39	1	2	2	Y	Y			
✱S01	TB6-9,10	I9U	60	22	11	SYS					
✱S02	TB6-11,12	I9L	62	24	13	SYS					
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			5
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y			
6C	TB3-7,8	J2L	44	6	16	6	Y	Y			
8A,8B,8C	TB5-9,10	J6U	42	4	8	8	Y	Y			3
8D,8E,8F	TB5-11,12	J6L	46	8	18	8	Y	Y			
8G,8H,8I	TB7-1,2	J7U	66	28	38	8	Y	Y			10

✱ SYSTEM DETECTOR ONLY. REMOVE THE VEHICLE PHASE ASSIGNED TO THIS DETECTOR IN THE DEFAULT PROGRAMMING.

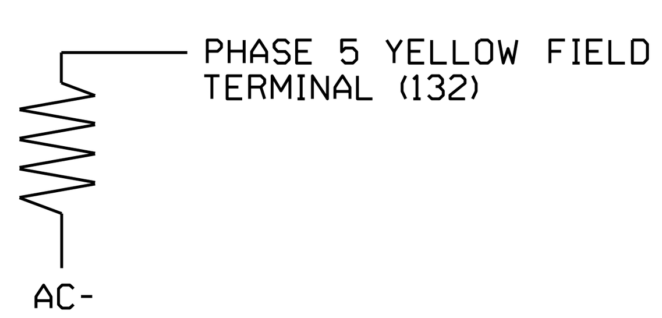
INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0571
DESIGNED: July 2016
SEALED: 7-01-16
REVISED: N/A

Electrical Detail - Sheet 1 OF 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1919 (S. Greensboro Street)
at
SR 1927 (Merritt Mill Road)/
NC 54 WB On Ramp

Division 7 Orange County Chapel Hill

PLAN DATE: July 2016 REVIEWED BY:
PREPARED BY: James Peterson REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of:
Traffic Engineering and Safety Systems Branch, State of North Carolina Department of Transportation, Signals Management Section
750 N. Greenfield Pkwy., Garner, NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036880 ENGINEER KEITH M. MIMS

DocuSigned by: Keith M. Mims 7/6/2016
SIGNATURE DATE

SIG. INVENTORY NO. 07-0571

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2 AND 3.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
  LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE       #5  IS ON
AND RED CLEAR ON PHASE #5  IS ON

            SCROLL DOWN

THEN:
SET OUTPUT  ASSIGNMENT #42 ON
SET OUTPUT  ASSIGNMENT #43 OFF
```

NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

PRESS '+'

```
  LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE       #5  IS ON

            SCROLL DOWN

THEN:
SET OUTPUT  ASSIGNMENT #44 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

PRESS '+'

```
  LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE    #5  IS ON

            SCROLL DOWN

THEN:
SET OUTPUT  ASSIGNMENT #43 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```
 PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
 PHASE:          ¦12345678910111213141516
VEH OVL PARENTS:¦ X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

NOTICE GREEN FLASH

PRESS '+' TWICE

```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
 PHASE:          ¦12345678910111213141516
VEH OVL PARENTS:¦    XX
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0571
DESIGNED: July 2016
SEALED: 7-01-16
REVISED: N/A

Electrical Detail - Sheet 2 OF 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1919 (S. Greensboro Street)
at
SR 1927 (Merritt Mill Road)/
NC 54 WB On Ramp

Division 7 | Orange County | Chapel Hill

PLAN DATE: July 2016 | REVIEWED BY:
PREPARED BY: James Peterson | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of:
Traffic Engineering and Safety Systems Branch
Signals Management Section
750 N. Greenfield Pkwy., Garner, NC 27529

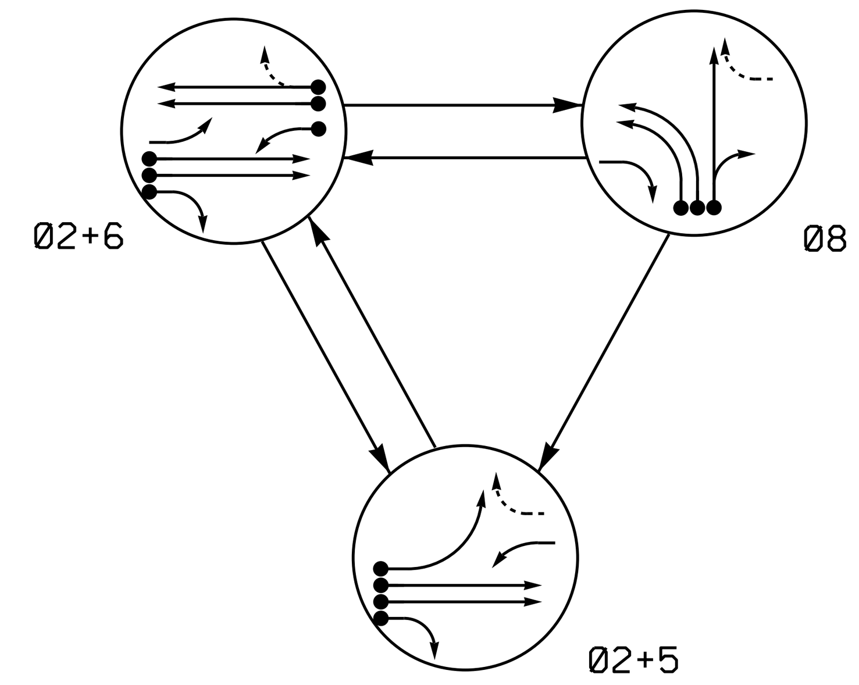
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036880 KEITH M. MIMS

DocuSigned by:
Keith M. Mims
SIGNATURE | DATE 7/6/2016

SIG. INVENTORY NO. 07-0571

PROJECT REFERENCE NO.	SHEET NO.
07-0571	Sig. 1.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

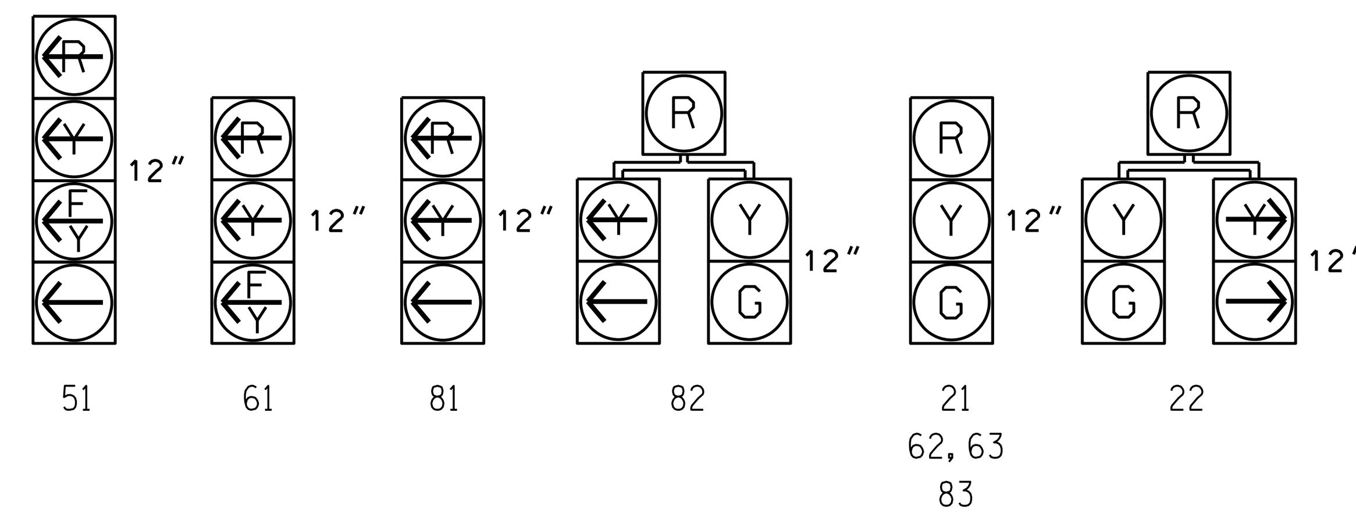
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	Ø2+6	Ø8	FLASH
21	G	G	R	Y
22	G	G	R / →	Y
51	←	←F/Y	←R	←R
61	←F/Y	←F/Y	←R	←R
62,63	R	G	R	Y
81	←R	←R	←	←R
82	R	R	G / ←	R
83	R	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



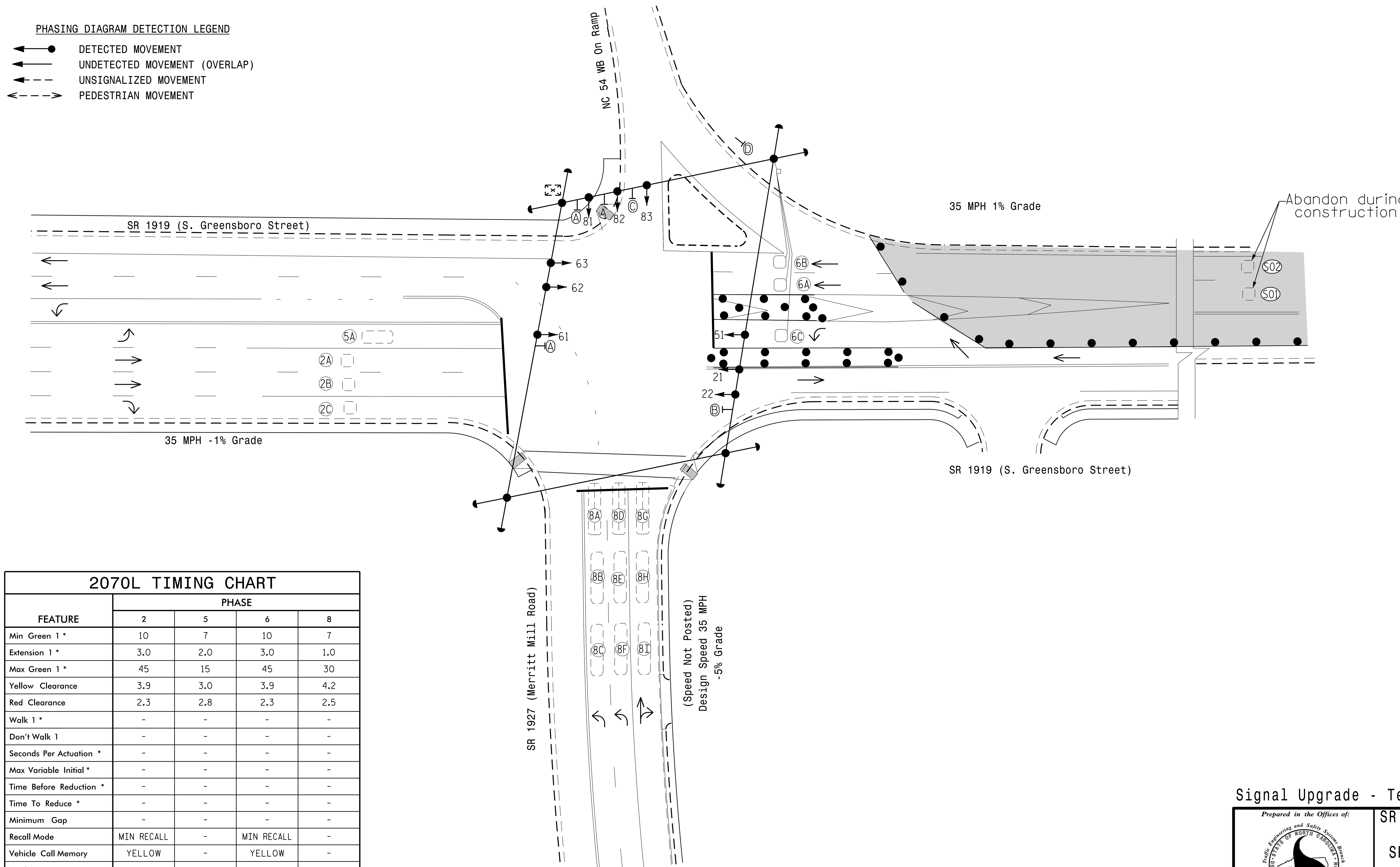
2070 LOOP & DETECTOR INSTALLATION

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A,2B,2C	6X6	70	Exist	-	2	Y	Y	-	-	-	-	-
5A	6X15	50	Exist	-	5	Y	Y	-	-	5	-	-
6A,6B,6C	6X6	30	4	Y	6	Y	Y	-	-	-	-	-
8A,8B,8C	6X25	Exist	Exist	-	8	Y	Y	-	-	3	-	-
8D,8E,8F	6X25	Exist	Exist	-	8	Y	Y	-	-	-	-	-
8G,8H,8I	6X25	Exist	Exist	-	8	Y	Y	-	-	10	-	-

3 Phase
Fully Actuated
Chapel Hill - Carrboro Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
5. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



2070L TIMING CHART

FEATURE	PHASE 2	5	6	8
Min Green 1 *	10	7	10	7
Extension 1 *	3.0	2.0	3.0	1.0
Max Green 1 *	45	15	45	30
Yellow Clearance	3.9	3.0	3.9	4.2
Red Clearance	2.3	2.8	2.3	2.5
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Construction Zone	
	Construction Zone Drums	
A	Left Arrow "ONLY" Sign (R3-5L)	A
B	Right Arrow "ONLY" Sign (R3-5R)	B
C	Combined Through and Right Arrow Sign (R3-6R)	C
D	"YIELD" Sign (R1-2)	D

Signal Upgrade - Temporary Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of: Traffic Engineering and Safety Systems Branch, State of North Carolina Department of Transportation, Signals and Geometrics Section, 750 N. Greenfield Pkwy, Garner, NC 27529

SR 1919 (S. Greensboro Street)
At
SR 1927 (Merritt Mill Road)/
NC 54 WB On Ramp

Division 7 Orange County Chapel Hill

PLAN DATE: July 2016	REVIEWED BY:
PREPARED BY: H. Kitchen	REVIEWED BY:

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

DocuSigned by: Ryan W. Hough 430320FAA2654C3... 7/1/2016 DATE

SIG. INVENTORY NO. 07-0571T

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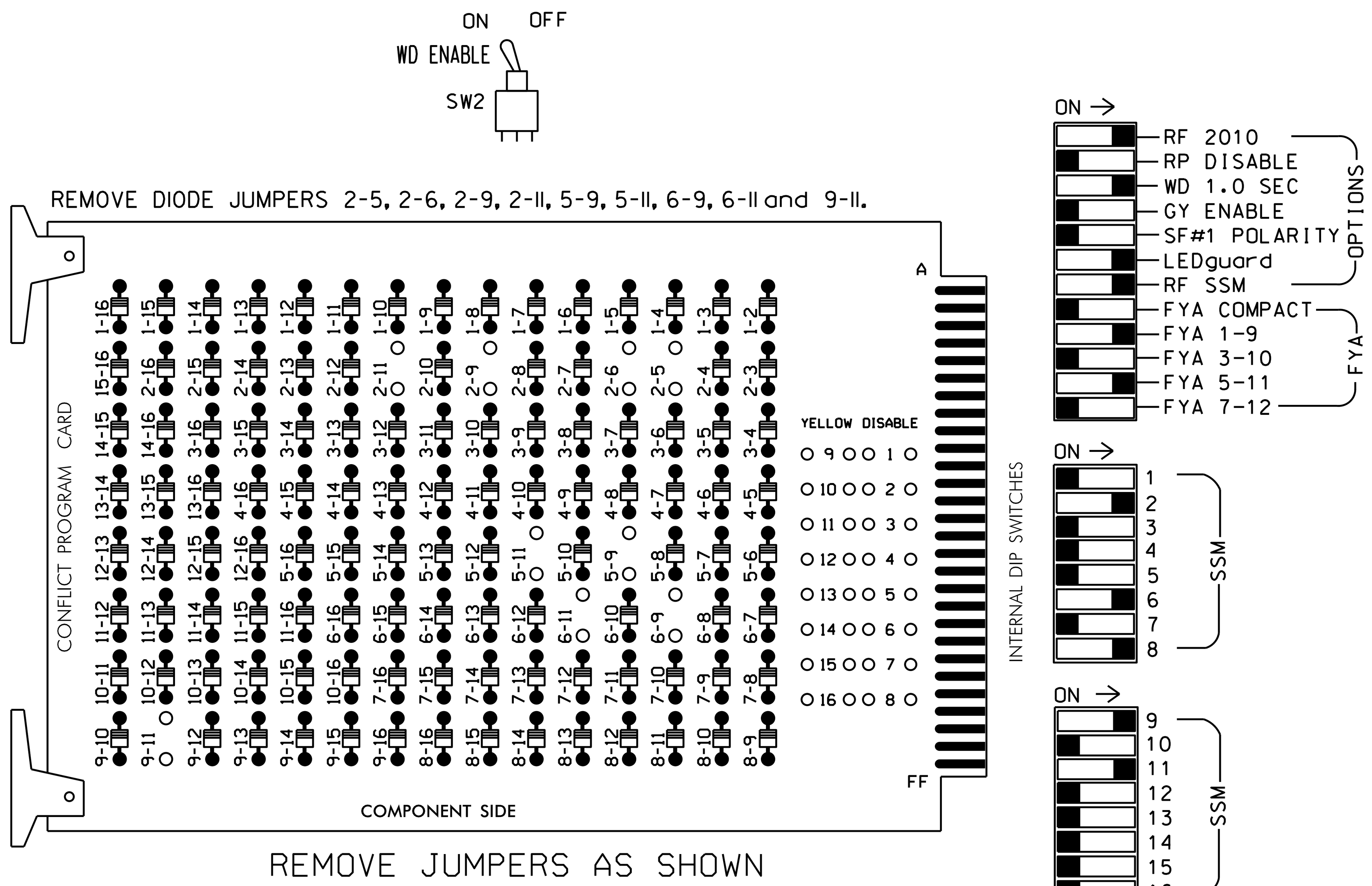
EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 1,3,4, 5,7,10,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Enable Simultaneous Gap-Out, for all phases.
4. Program phases 2 and 6, for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash, and overlap 1 as WAG Overlaps.
6. The cabinet and controller are part of the Chapel Hill-Carrboro Signal System.

EQUIPMENT INFORMATION

CONTROLLER..............2070L
CABINET.................332 /W/ AUX
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S2,S5,S6,S8,S9,S12
PHASES USED.............2,5,6,8
OVERLAP "A".............2
OVERLAP "B".............NOT USED
OVERLAP "C".............5+6
OVERLAP "D".............NOT USED

PROJECT REFERENCE NO.	SHEET NO.
07-0571	Sig. 1.1

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8			S8P	S9	S10	S11	S12	S13	S14
PHASE	1	2	2 PED	3	4	4 PED	5★	6	6 PED	7	8			8 PED	OLA★	OLB	SPARE	OLC★	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	NU	NU	51	62,63	NU	NU	81	22,82	82,83	NU	61	NU	NU	51	NU	NU
RED		128						134					107							
YELLOW		129					✱	135					108							
GREEN		130						136					109							
RED ARROW											107				A121			A114		
YELLOW ARROW											108	108			A122			A115		
FLASHING YELLOW ARROW															A123			A116		
GREEN ARROW							133				109	109								

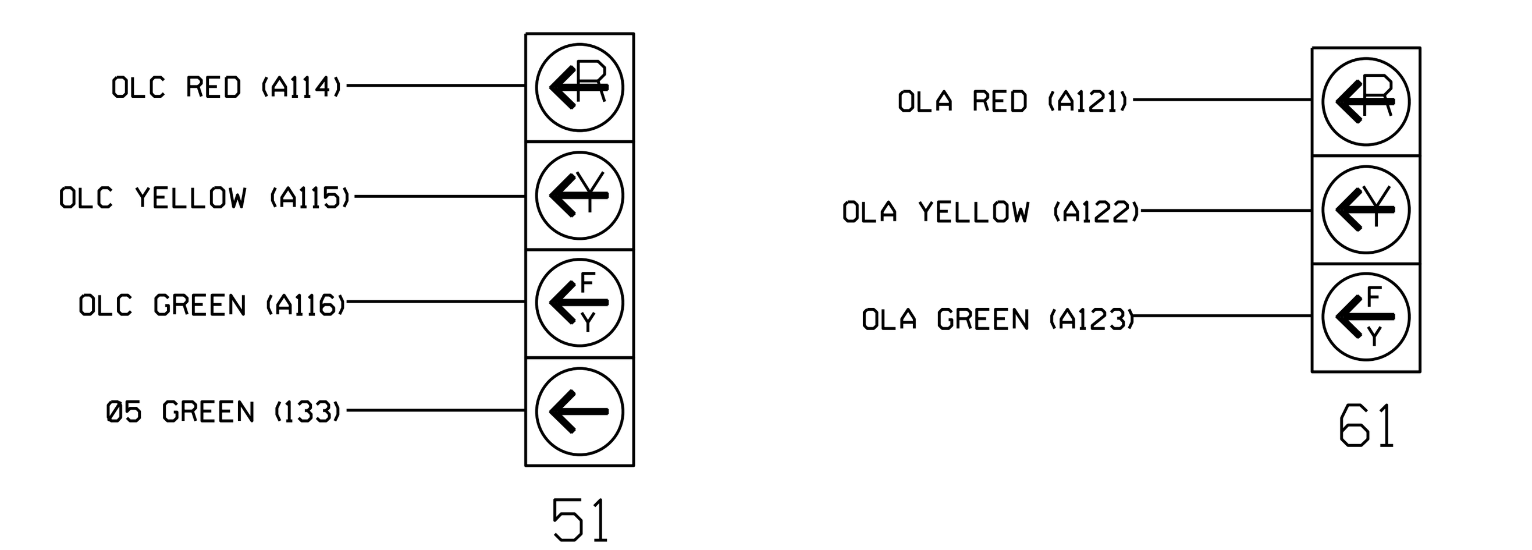
NU = Not Used

✱ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail below.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

1. The sequence display for this signal requires special logic programming. See sheet 2 of 2 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	Ø2 2A,2B,2C	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L		NOT USED												ST DC ISOLATOR
FILE "J"	U	Ø5 5A	Ø6 6A,6B,6C	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø8 8A,8B,8C	Ø8 8G,8H,8I	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	NOT USED				Ø8 8D,8E,8F	NOT USED							

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A,2B,2C	TB2-5,6	I2U	39	1	2	2	Y	Y			
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			5
6A,6B,6C	TB3-5,6	J2U	40	2	6	6	Y	Y			
8A,8B,8C	TB5-9,10	J6U	42	4	8	8	Y	Y			3
8D,8E,8F	TB5-11,12	J6L	46	8	18	8	Y	Y			
8G,8H,8I	TB7-1,2	J7U	66	28	38	8	Y	Y			10

INPUT FILE POSITION LEGEND: J2L

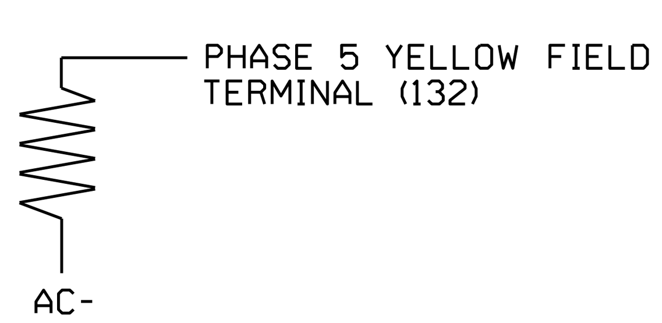
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0571T
DESIGNED: July 2016
SEALED: 7-01-16
REVISED: N/A

Electrical Detail - Sheet 1 OF 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1919 (S. Greensboro Street) at SR 1927 (Merritt Mill Road)/ NC 54 WB On Ramp

Division 7 Orange County Chapel Hill

PLAN DATE: July 2016 REVIEWED BY:
PREPARED BY: James Peterson REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of: Signals Management Section, 750 N. Greenfield Pkwy., Garner, NC 27529

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036880 KEITH M. MIMS

DocuSigned by: Keith M. Mims 7/6/2016
SIGNATURE DATE

SIG. INVENTORY NO. 07-0571T

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jtpeterson

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2 AND 3.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
  LOGICAL I/O COMMAND #1  (+/-COMMAND#)
 IF  ACTIVE PHASE       #5  IS ON
 AND RED CLEAR ON PHASE #5  IS ON

            SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #42 ON
 SET OUTPUT  ASSIGNMENT #43 OFF
```

NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

PRESS '+'

```
  LOGICAL I/O COMMAND #2  (+/-COMMAND#)
 IF  ACTIVE PHASE       #5  IS ON

            SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #44 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

PRESS '+'

```
  LOGICAL I/O COMMAND #3  (+/-COMMAND#)
 IF  YELLOW ON PHASE    #5  IS ON

            SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #43 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```
 PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
 PHASE:           |12345678910111213141516
VEH OVL PARENTS:| X
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

NOTICE GREEN FLASH

PRESS '+' TWICE

```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
 PHASE:           |12345678910111213141516
VEH OVL PARENTS:|     XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0571T
DESIGNED: July 2016
SEALED: 7-01-16
REVISED: N/A

Electrical Detail - Sheet 2 OF 2

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SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036880 ENGINEER KEITH M. MIMS

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